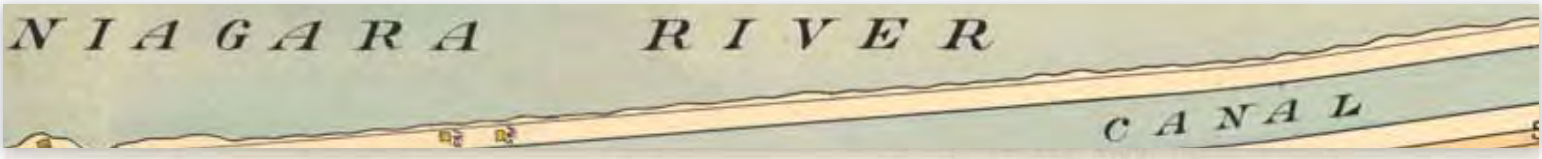
Black Rock Canal Park

Feasibility Analysis

DRAFT

peter j. smith & company, inc. May 2010



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Feasibility Analysis

May 2010 (DRAFT)

Prepared by *peter j. smith & company, inc.*
Buffalo, NY

for Erie County, NY - Department of Environment and Planning

Acknowledgments

peter j. smith & company, inc. gratefully acknowledges the assistance and input provided by the Erie County Department of Environment & Planning and members of the the project Steering Committee and Advisory Committee. Representatives participated in the feasibility analysis process and provided insight, guidance and feedback during the course of work.

Steering Committee

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Maria Whyte, Erie County Legislator
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Bill Parke, City of Buffalo Office of Strategic Planning
Joe MacMahon - Office of NYS Assemblymember Sam Hoyt
Bill Nowak - Office of New York State Senator Antoine Thompson

Advisory Committee

All Members of the Steering Committee plus:

Gary Hall, Harry's Harbour Place
Bryan Hinterberger, US Army Corp. of Engineers
Philip Berkeley, US Army Corp. of Engineers
Rob Belue, Niagara Greenway Commission
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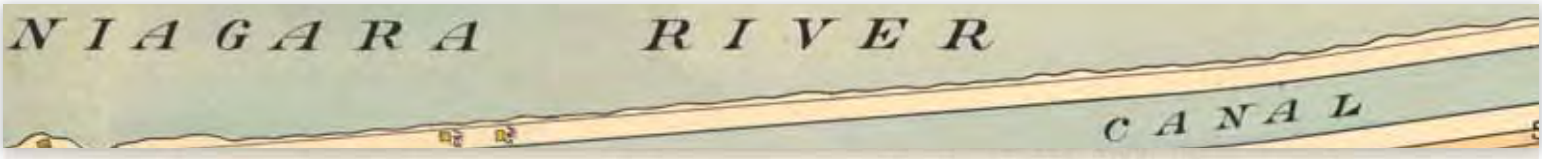


Executive Summary

The Site

Black Rock Canal Park (BRCP), currently known as the Ontario Street Boat Launch and Cornelius Creek Park, is an Erie County-owned site along the Niagara River in Buffalo's Black Rock/Riverside area occupying approximately 8.3 acres, of which approximately 4.7 acres is dry land (the property lines extend into the water). The project area, however, extends beyond the property line to include approximately .4 acres of New York State Thruway Authority land under the I-190 overpass and the .2-acre park entrance road owned by the City of Buffalo to create a total project area of 5.3 acres of dry land.

Challenges

Currently the Ontario Street Boat Launch property is uninviting due to the state of disrepair, the expanses of featureless paving and the relative isolation of Cornelius Creek Park. The 2,300 –foot shoreline is monotonous, generally consisting of a simple railing and narrow walkway. The boat launch get moderate use in spite of difficulties with floating debris that sometimes obstructs the access to the water. Another problem is that the project area is bisected by Cornelius Creek, the City's largest combined sewer overflow (CSO). By design, untreated sewage overflows into Cornelius Creek when precipitation causes a spike in sewer flows leaving an unpleasant sewer odor at the park. The Buffalo Sewer Authority is being mandated to fix the CSO problem city-wide though the date when Cornelius will be addressed is currently unknown.

Opportunities

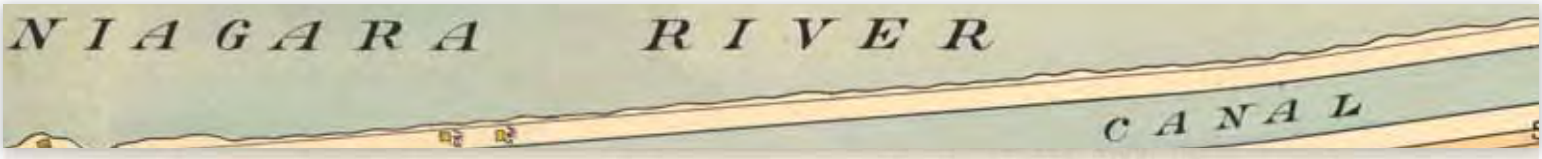
In spite of the current difficulties, the site is well used and has a tremendous potential for improvement and warrants a significant investment resulting in increased use and a more positive image of the region. The views over the Niagara River are appreciated by numerous anglers and the many visitors that come to eat lunch or watch the sunset. Further, the views over the park toward the river are seen by the 69,000 vehicles per day that travel on I-190 directly adjacent to the site. The site contains a segment of the Erie County Riverwalk which is a continuous pathway along the Niagara River running from downtown Buffalo to the City of Tonawanda at the County's north border. This provides a link to numerous other shoreline parks and allows park visitors to not have to take their car to the site.

A Grassroots Plan for Improvements

Members of the Black Rock/Riverside community who frequent the park are keenly aware of the challenges and opportunities at the site and decided to create a plan for improvements. The organization known as the Black Rock-Riverside Good Neighbors Planning Alliance (BRRGNPA) formed a subcommittee to address the project. The group, later reformed as the Black Rock Canal Park Steering Committee, completed an award-winning plan in 2006 for the park. The BRRGNPA planning process involved extensive public input and meetings resulting in a plan that was extremely well received by the community. Major features included a mixed-use building; reconfigured parking; a dog park, playground; covered creek; improved bike path, a deck over the river; and an improved entrance road.

Erie County Feasibility Analysis

In 2009, Erie County retained the landscape architecture and planning firm, peter j. smith & company, inc. (PJS) to conduct a feasibility analysis of the GNPA plan for Black Rock Canal Park. This report is the result of that effort. To guide the process, two committees were formed, the Erie County BRCP Advisory Committee and the Erie County BRCP Steering Committee. The Steering Committee, whose members represent agencies that have a role in the project's funding, schedule or maintenance, was convened three times. The Advisory Committee had a broad membership with 25 members consisting of the original GNPA members, the Erie County Steering Committee members plus representatives of several elected officials and local organizations. In addition to the committees there was consultation with representatives of the US Army Corps of Engineers, the NYS Department of Environmental Conservation, US Department of Homeland Security, Erie County Sheriff's Office, US Fish & Wildlife Service, and the Buffalo Niagara Riverkeeper.



The Options

The Feasibility Analysis scope included reviewing the BRRGNPA plan and providing alternatives to items deemed not feasible.

BRRGNPA Plan

There were several items of this proposal that were adjusted in the subsequent conceptual plans due to either input from the Advisory Committee or to address comments by government regulatory agencies. These include: elimination of parking on the creek cover which would be designed to be removable in the event water quality was restored (the creek cover was also scaled back to allow room for clean-ups at the mouth of the river); modification of the concrete deck over the river based on to concerns by regulatory agencies; the boardwalk concept was retained but pulled back adjacent to the shoreline; the dog park was reconfigured to eliminate the use of NYS Thruway lands; the road to the north was terminated part way along its length and the personal watercraft dock was changed to a paddlesports launch as a result of input from the Advisory Committee. The remaining items from this concept have been reconfigured in later plans once the adjustments suggested above were made.

Modified Plan

This option features a covered creek, a two-story mixed-use building; a road to the north that is terminated at two thirds of its existing length, a waterfront walkway north of the building that extends out over the water with an adjacent bike path, a dog park, a playground, an 300-foot pier extension creating a marina with slips for 35 boats.

Alternative Plan

This option features an uncovered creek; a single-story restroom/concession building; a road to the north that is terminated at half of its existing length; a waterfront pathway build inland of the waters edge; a dog park; a shipwreck interpretive feature; a 70-foot pier extension creating a marina for 18 boats and a paddlesports launch.

Common Elements

There are some features that are common to the three alternatives described above: the entrance road is improved with a new sign, trees and sidewalk, the main parking lot is re-configured to reduce the amount of paving and more efficiently park vehicles; and there is some form of continuous waterfront walkway.

No Master Plan?

Both the Modified Plan, the Alternative Plan, or a combination thereof, can move forward . Implementation is consistent with the ongoing use of the park and is not to be construed as a master plan for future park use. Some issues still require study beyond the scope of this report or could not be fully defined without first determining the magnitude of funding that will be available. Unresolved items include:

- Covering Cornelius Creek – the cost to cover the creek in order to reduce odors and give the park more continuity is estimated to be $3.8 million. This option will require a more intensive environmental review process.

- Shoreline Trail – options for the treatment of shoreline trail system north of the existing restroom/concession building include either an overhanging walkway combined with a separate bike path or an inland multi-purpose walkway. The costs for the two options vary widely and the available funding has not been determined.

- Building Scale – whether to include a modest restroom/concession building or a larger mixed use building with facilities for a security –related agency such as the Erie County Sheriff Marine Patrol has not been determined. There is yet to be a commitment from a tenant and funding has not been determined.

Initial Improvements

There is funding immediately available for engineering and construction of improvements at Black Rock Canal Park. There are also a number of plan components that are widely agreed upon that will not preclude the advancement of many packages of components from either the Modified Plan or the Alternative Plan.

1.0 Background

Feasibility Analysis

Erie County owns and operates an interconnected series of waterfront recreational facilities along the Niagara River. These facilities, located in the Riverside neighborhood of Buffalo, New York, include Cornelius Creek Park, Ontario Street Boat Launch and a section of the Riverwalk multi-use trail. The declining physical condition of these facilities combined with unrealized recreational potential for the site led the Black Rock - Riverside Good Neighbors Planning Alliance to prepare a Concept Plan for improvements to the facilities. Per the community concept, the facilities would be collectively called Black Rock Canal Park.

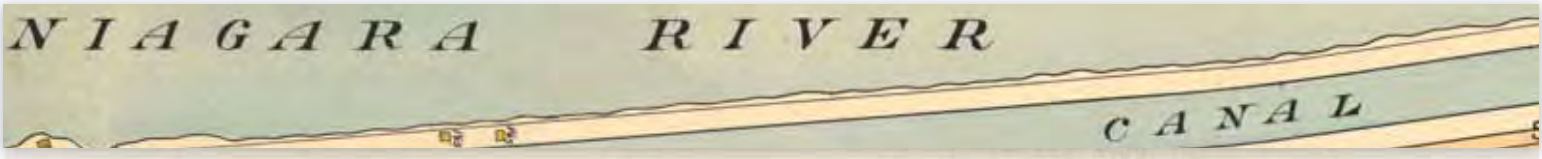
In the fall of 2007, Erie County Department of Environment and Planning requested proposals for an analysis of the feasibility of the Concept Plan. peter j. smith & company, inc., a multi-disciplinary landscape architecture and urban planning firm was selected to lead the Feasibility Analysis. The scope of the Feasibility Analysis includes a physical inventory of site conditions, evaluation of the Concept Plan, recommendations for alternative design features, a phasing plan for implementation, and preparation of New York State Environmental Quality Review documents.

Planning Process

Landscape architects from the firm of peter j. smith & company, inc. led the Feasibility Analysis, working closely with the project Steering Committee and the volunteer Advisory Committee. Members of the Feasibility Analysis' Steering Committee represent agencies that have a role in the project's funding and scheduling or in the park's maintenance. The Steering Committee provided direction on contractual requirements, project scope, schedule, maintenance, funding, and other business-related issues. The Advisory Committee was made up of members of the Black Rock Canal Park Steering Committee, a community group that prepared the Concept Plan for the park, in addition to members from the US Army Corps of Engineers, the Niagara Greenway Commission and members of this Feasibility Analysis' Steering Committee. The Advisory Committee provided input on the park, its design components, and the feasibility analysis process. See Chapter 5 for a list of committee members and their affiliation. The feasibility analysis process included eight Advisory Committee meetings and three Steering Committee meetings, as well as meetings with and interviews of other stakeholders and agencies who operations and/or decisions may affect the design or implementation of the park.

The design process started with an interactive input session with the Advisory Committee members; the input session invited feedback on the strengths and weaknesses of the proposed Concept Plan. A draft vision statement, guiding principles, and project goals were also presented to the Advisory Committee for their review and feedback. From there, the Concept Plan was evaluated based on criteria that reflected the vision, guiding principles and project goals.

Based on the evaluation, as well as inventory of site conditions and relevant local/regional planning documents, the project landscape architects made recommendations for alternative design features and produced a plan for Phase 1 implementation. Cost estimates for the design and construction of the park, summaries of best management practices and construction requirements, and a listing of potential funding sources are also included in the Feasibility Study.



Black Rock – Riverside GNPA Concept

The City of Buffalo Office of Strategic Planning initiated a neighborhood-based planning process as part of the city's ongoing Comprehensive Planning efforts. The neighborhood-based planning process, known as the Good Neighbors Planning Alliance (GNPA) seeks to actively involve citizens in the creation of community-based action plans in each of the city's GNPA areas. The Black Rock - Riverside GNPA was created in 2001 to represent the Riverside planning area, which is comprised of the Riverside, Black Rock and West Hertel neighborhoods.

In 2006, the Black Rock - Riverside GNPA prepared an award-winning Concept Plan for Black Rock Canal Park. The park, while new in name, is a synthesis of three, adjacent, waterfront recreational facilities: Cornelius Creek Park, Ontario Street Boat Launch and a section of the Riverwalk multi-use trail. The goals of the Concept Plan are to address the deficiencies in the current design of these facilities, to increase parkland along the river, and to foster usage of the park by a diversity of users.

2.0 Vision

Vision Statement

Black Rock Canal Park will be a pre-eminent public open space, a recreational destination in the county, an icon of the Black Rock and Riverside neighborhoods and a portal onto the Niagara River waterfront. It has the potential to become a regional destination, a component of the Niagara River Greenway and act as a gateway into the City.

Goals and Objectives

Promote a variety of connections with all areas of the city.

Given that Black Rock Canal Park is the most significant waterfront open space in west Buffalo it serves as an anchor and a portal on the Niagara River for the entire open space system of parks and trails. Specifically it provides links to

- Riverside High School
- the Black Rock/Riverside neighborhoods
- Olmsted system of parks
- the Niagara River

Develop a significant regional attraction in the city.

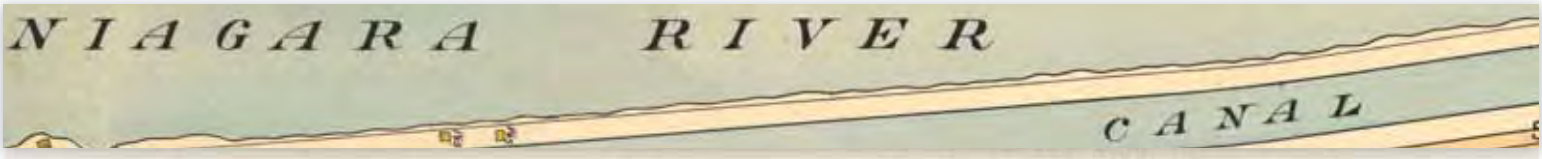
Given that Black Rock Canal Park has the largest waterfront land base (8 acres) of any open space along the Niagara River it offers amenities that make it a destination for residents and visitors.

- Promote water activities as boating, fishing, scuba
- Enhance opportunities for viewing in all four seasons for a variety of users
- Create a primary space for special events and gathering
- Develop the feature section of a future continuous waterfront promenade

Create a recognizable icon on the waterfront of the city.

The Black Rock Canal Park is a waterfront park on a world renowned river in a city with three waterfronts: the Niagara River, Lake Erie and the Buffalo River, it a place that is unique and exemplary with a sense of place.

- Develop an park that reflects its own unique local character
- Create signature features that reflect the history and culture of the site
- Attract a wide cross section of residents and visitors
- Develop an inviting pedestrian oriented place
- Introduce art into the public waterfont



Develop a gateway entering the city from the north.

Given that Black Rock Canal Park is visible from the I-190 south entering the City of Buffalo and from the Niagara River at the northern edge of the city it will be a signature place with significant features that add to its value as a gateway.

- Build a recognizable and visible signature
- Develop a green natural area of riverfront
- Set the standard for the continuity of waterfront green space

Promote and enhance nature and green development in all aspects of the park.

Black Rock Canal Park will be a vestige of publicly accessible shoreline, located along one of the most scenic rivers in the world, all aspects of design, construction and education must enhance and complement the values:.

- Manage stormwater in an environmentally responsible way
- Build green incorporating environmental design principles
- Interpret green design and construction techniques

Program the park to support community education.

Given that Black Rock Canal Park is proximate to Riverside High School and is rich in history and natural wonders, a comprehensive interpretation program will make this park a significant attraction.

- Develop a comprehensive interpretative program
- Enhance understanding of nature and ecology
- Develop an atmosphere of an outdoor museum
- Develop community/neighborhood facilities

Recognize the significance of the site's connection to the New York State Canal System

Given that Black Rock Canal Park is located between the Canal Gateway in Tonawanda and North Tonawanda and the Buffalo Inner Harbor, this park should serve to represent the link between the past Old Erie Canal and the present Erie Canal and Inner Harbor a nd the future Canal-side Project in the Buffalo Inner Harbor.

- Develop a comprehensive interpretive program educating visitors about the canal
- Improve facilities that will enable boaters to navigate to these locations

Encourage events that the recreational and historical value of the Canal System.

Enhance access to a significant public resource, the Niagara River.

Given that Black Rock Canal Park is the longest stretch of open shoreline on the Niagara River in Buffalo, the area should as water accessible as possible both physically, visually and for challenged individuals.

- Promote areas where one can touch the water
- Improve accessibility for water based activities as boating, fishing
- Apply standards to make all components accessible for challenged individuals
- Maintain waterside lands for water dependent uses

Guiding Principles

Guiding principles are fundamental obligations or tenets that are applied to the development of public waterfront open space. There are six guiding principles that cover all aspects to guide the evaluation and design of Black Rock Canal Park. The design of the waterfront open space should promote:

- the environment: stormwater, contamination remediation and general sustainability
- nature: through the use of native vegetation, and landscapes
- circulation: pedestrians, bicycles and boaters
- people activities both indoor and outdoor and for all seasons
- water use and access
- viewsheds

3.0 The Alternatives

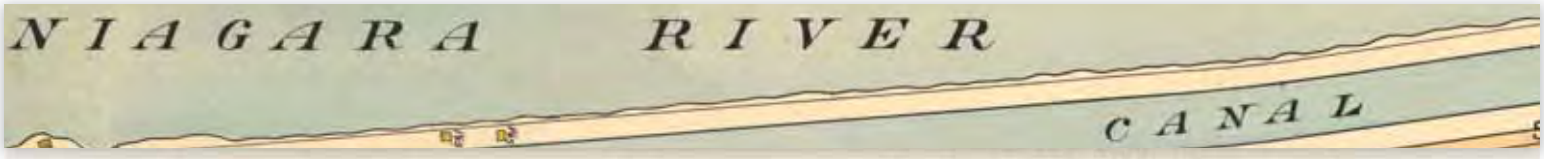
The Challenge

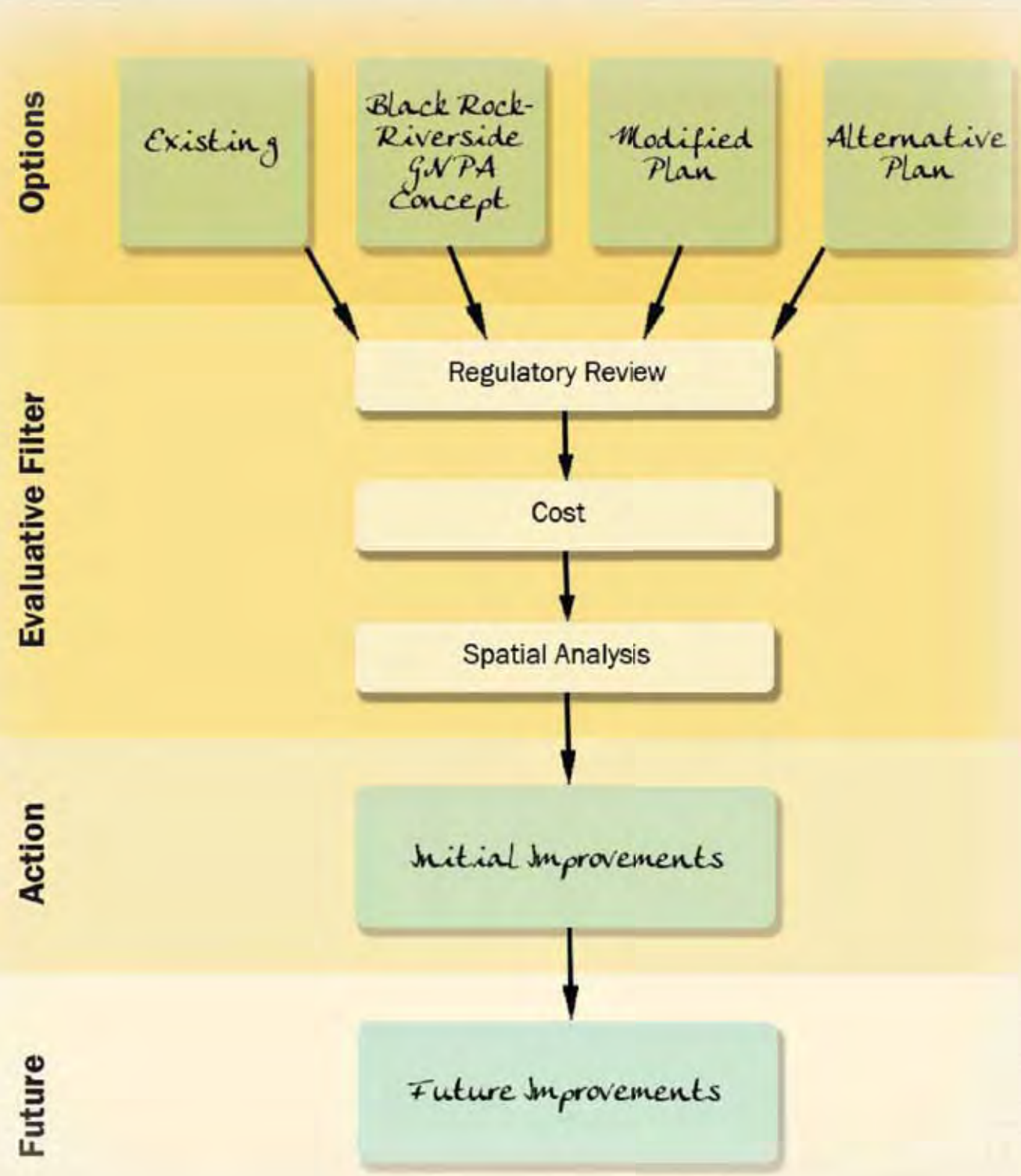
Black Rock Canal Park is a significant piece of several different, but complimentary, stories: it provides access to the riverfront that was so influential to the growth of the Black Rock and Riverside neighborhoods; it is an integral part of the county, city and regional park systems; it is a connection along the Niagara River Greenway; it is located along the historic route of Erie Canal and within the Erie Canalway National Heritage Corridor; it is just downstream of the Black Rock Canal and its operating lock; and it is along the Seaway Trail National Scenic Byway .

The challenge is to develop a plan for Black Rock Canal Park that bring all of these stories together into one cohesive book – a best-seller no less. The Feasibility Study examines several options for the design of the Park. Ultimately, the Park must integrate the history of the Black Rock and Riverside neighborhoods and the Erie Canal; solidify the ties between the county parks and trails, the city's historic Olmsted parks and other waterfront parks, and the Niagara River Greenway; and reflect its presence within the Erie Canalway National Heritage Corridor and the Seaway Trail National Scenic Byway. These stories provide the framework to build a park that provides recreational opportunities and water access to a variety of users, presents a welcoming gateway into the City of Buffalo from the north, and is an attractive destination for visitors and residents alike.

Evaluation Process

A process has been set up to understand the feasibility of developing Black Rock Canal Park as a major new park in Erie County and the City Of Buffalo. The process includes creating a vision, understanding the context and the site, looking at the plan for the park that was developed by the BRRGNPA and preparing alternatives for consideration. In this chapter, we will present four options (alternatives) for developing the park; we will evaluate the various elements of these options. The graphic at right illustrates this process.


NIAGARA RIVER
CANAL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Existing
Black Rock-Riverside GNPA Concept
Modified Plan
Alternative Plan
Evaluative Filter
Regulatory Review
Cost
Spatial Analysis
Action
Initial Improvements
Future
Future Improvements

Design Issues

Any design option developed for Black Rock Canal Park must address a series of issues that have much to do with the ultimate success of the Park. These are not general park design issues, but rather are specific to the opportunities and constraints of this site.

Security and Environmental Issues

The Ontario Street Boat Launch and Cornelius Creek Park have had problems in the past with vandalism of the park amenities. The building has been spray painted, benches have been broken and railings have been damaged. In recent years the park seems to have been low on the list of priorities for maintenance, resulting in the accumulation of trash and debris in the water, which can make it difficult for boaters to launch. Cornelius Creek Park, accessible only by the Riverwalk trail and by a pedestrian bridge, is isolated from the rest of the park. All this has contributed to an atmosphere of neglect and a feeling of insecurity for park users.

The conversion of Cornelius Creek to a combined sewer overflow (CSO) by the City of Buffalo further degrades the site by producing foul odors and degrading shallow water aquatic habitat. The Buffalo Sewer Authority (BSA) admits that restoration of the water quality within the artificial confines of Cornelius Ccreek may be decades away.

There are several approaches to address this concern. An idea, brought forth early on in the Black Rock – Riverside GNPA Concept Plan, is to include a space in the park that can be occupied by a security-related agency such as the Erie County Sheriff's Office, a branch of the US Department of Homeland Security or a similar agency that uses boats and needs access to the river. Any of these agencies would create a presence in the park that would discourage vandalism and nefarious activity. During investigation for this feasibility analysis, a variety of agencies were contacted but none have committed to locating at BRCP. In spite of this, communications can continue and space can be planned, with the hope that a security-related agency will commit to locating in the park in the future.

Other options for improved security include the addition of real-time security cameras, law enforcement patrols and working with AmeriCorps to do patrols and cleanups on a regular basis. Improved maintenance by Erie County Parks Department staff would also create a more positive atmosphere. The conventional thinking among park managers is that quickly addressing vandalism deters additional vandalism.

Recreational Activities

There are a wide variety of recreational opportunities that could be included in Black Rock Canal Park, but the question is: what type of recreation is appropriate for this site, given its limited, linear layout and its waterfront location? Priority should be given to recreational activities that advance the vision established for this project, especially those that cannot be provided by other nearby facilities, such as Tow Path Park, George Washington Park or Riverside Park.

Parking

The challenge of designing parking is to provide only the amount of parking that is necessary for normal park activity. Too much parking will waste valuable waterfront space that could be used for recreational activities or for greenspace. However, parking for special events at the park that draw large numbers of visitors also needs to be planned for. Possible solutions include designating overflow parking, shuttles to off-site parking areas or arrangements with nearby property owners to allow occasional event parking. Another challenge is creating awareness that the parking is associated with the park

and providing a convenient walkway. Signage, both at the off-site parking area and on-site, would help orient the park visitor.

Given that the Ontario Street Boat Launch and Cornelius Creek Park are located in the largest, widest area of the site, it is likely that major activities such as the boat launch and the proposed building will remain in this area. And given that activities need convenient access, it will be important to provide parking within a reasonable walking distance to this part of the site. Even though the site has approximately nine acres of space available, the length is over 2,100 feet, which makes for a very linear park. Because of this linear configuration of the site, it may be necessary to look for parking areas off-site to ensure that the parking is close to the activity area.

The graphic at right illustrates various distances from the center of the existing parking area. It shows that there are several vacant properties along Niagara Street within 200 yards of the existing parking lot at the site, which should be considered for purchase. Some of these properties are currently for sale.

Of particular interest are two properties along the entrance road. The property to the south (right) is a Kwik Fill gas station. While this property is not for sale, it includes a lawn area along the park entrance road that would provide convenient parking without impacting the layout of the Kwik Fill. If approached and the terms are favorable, Kwik Fill may be willing to sell or lease this portion of their property. On the north (left) side of the entrance road is an automobile repair business. This property is also not for sale but the owners may be willing to sell if the terms are favorable and a new location for the business could be provided. A third parcel, south of Kwik Fill, is vacant and was listed for sale in the recent past, although not currently. While it is not along the entrance road, it would be relatively inexpensive and is in close proximity to the most active part of the site.

Since off-site parking depends on successful negotiations with one of the adjacent property owners, planning and layout of off-site parking cannot be completed at this time. At this point, one can only estimate the ultimate number of parking spaces needed at one time. Since the park plan will be implemented in phases, the layout of parking and overflow parking should be flexible. Ideally, space should be designated as potential parking and implemented only when needed as the build-out of the park is accomplished.

Cornelius Creek

Cornelius Creek, once an urban watercoursehas water quality problems. It is piped underground until it emerges within the park, where it is daylighted and flows approximately 275 feet to the Niagara River. It acts as a storm sewer collecting rain and snow melt runoff from the streets, but it is also a major combined sewer overflow (CSO). When the volume is too great in the North

The Alternatives

Interceptor (a major sanitary sewer line), sewage spills over a regulator weir/dam into Cornelius Creek. The Buffalo Sewer Authority (BSA) is the agency responsible for the CSOs city-wide. BSA is aware of the problem at Cornelius Creek but currently does not have adequate funding or a plan in place to make corrections.

The US Environmental Protection Agency (EPA) and the DEC have mandated that the city address the CSO problem and are negotiating a consent order with BSA as of the spring of 2010. Once the consent order is in place, BSA will establish a list of priority projects based on cost effectiveness and political direction. Therefore, the issue of how to address Cornelius Creek in the Park design is a difficult one. At some point in the future, the water quality will be improved by the BSA as mandated by the EPA and DEC; but that date is an unknown.

There are two approaches about how to best plan a high quality waterfront park that includes Cornelius Creek:

- Cover the Creek – This approach is based on the fact that the odors emanating from the waters after a CSO spill are offensive and that the view that the creek is unattractive, so the best solution to create a quality park is to cover the creek; then at a later date, when the CSO issue has been addressed and water quality has improved, the cover can be removed. In this approach, major features of the park, such as parking, would not be placed over the creek in order to allow removal of the cover when appropriate. Supporters of this option have questioned whether Cornelius Creek is actually a "creek" and view it as nothing more than a sewer outfall. As such, it does not deserve the same degree of protection afforded for a natural creek.
- Leave the Creek Open – This approach is based on the concept that it is generally not a good idea to cover a creek because, in spite of the CSO, there is some wildlife benefit to the embayment created by this watercourse. Supporters of this option believe that covering the creek would cause its cleanup to become a lower priority for BSA and that continued visibility would keep the problem in the public eye, like the Hamburg Drain at the center of the redeveloped Buffalo Inner Harbor. Proponents of this option contend that the cover is likely to be very expensive, that money would be better spent on other park improvements.

Design Options

Purpose of the Options

A series of options have been prepared for the design of Black Rock Canal Park and are presented in this report. The options represent different approaches and philosophies from the groups and individuals that participated in the design feasibility review process. The options are not mutually exclusive; ultimately,

Cornelius Creek is daylighted through a box culvert that passes beneath the park entrance road, above.

Standing above the box culvert, looking east along the above-ground portion of Cornelius Creek, right.

components from the various options may be implemented and intermingled based on the funding available at a future date and the priorities of the interested parties at that time. However, the outcome of this feasibility analysis is the development of a Phase 1 plan, designed to utilize the funds that are currently in place, and to present a variety of options that are available for later phases.

Four Options

There are four options for Black Rock Canal Park:

- *No Action*
- *2008 BRRGNPA Concept*
- *Modified Plan*
- *Alternative Plan*

Option 1: No Action

This option is included to act as a baseline for the comparison of other options and to demonstrate the need for making changes. The conditions at the two properties that make up the Black Rock Canal Park project (Cornelius Creek Park and the Ontario Street Boat Launch) are described in the chapter titled "The Site".

Option 2: 2008 Black Rock – Riverside GNPA Concept

This is the original plan developed by the Black Rock – Riverside Good Neighbors Planning Alliance (GNPA) (currently the Black Rock Canal Park Steering Committee), which has generated a great deal of support and enthusiasm for the development of Black Rock Canal Park. Since this plan was completed in 2008 and during the process of this Feasibility Study, the

The Alternatives

Committee has proposed a number of changes and new ideas that are not reflected in their original graphics, so it should not be taken as their current plan for the Park. However, as of early spring 2010, in the absence of new graphics, the excellent graphics developed for this award-winning plan are still being used by committee members to promote the project. Therefore, in the minds of many in the community who have not been involved this feasibility analysis, this is the plan for the park and, so, it is included as one of the options in this feasibility study.

Roadway to the North

The existing road from the location of the existing restroom concession building to the north has been altered by placing angled parking on the Thruway side of the road in order to keep views of the water open. A separate bike path runs parallel to the road on the land side of the bulkhead wall.

Deck Over the River

The issue of the narrow limited space between the I-190 and the water has been remedied by creating a concrete "deck" on pilings, which extends over the river. The width of the deck tapers, but is approximately 35 feet at the south end and approximately 20 feet at the north end. The deck is to be covered with soil and seeded to create new greenspace. Beyond the deck on the river side, is a boardwalk, approximately 12 feet in width, built on piers.

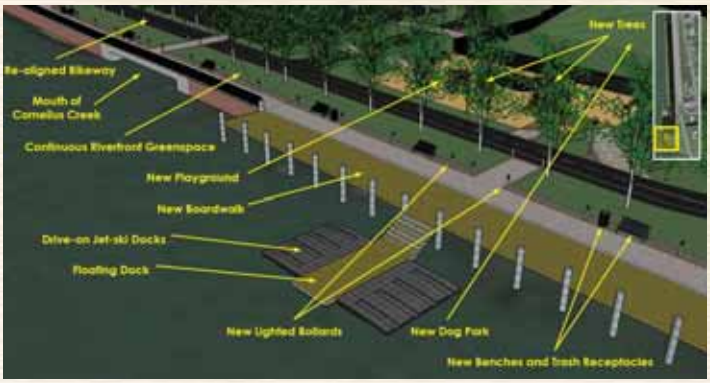
Building

At four stories and 9,400 square feet of usable space, this is the largest building concept of all the options. The building is designed to contain year-round concessions, restrooms, shower facilities, a visitor center, meeting rooms, park staff offices, Department of Homeland Security offices, a server room and observation deck.

Boaters Facilities

The existing pier is extended by approximately one hundred feet and some new slips are created near the building for the Department of Homeland Security, or whichever security-related organization occupies the building. The existing free boat launch would be refurbished

Creek Cover



A fully covered creek is shown in this option, creating space for parking and recreational activities.

Dog Park

A dog park is located at the current location of Cornelius Creek Park, partly on the flat lower part of the park and partly on the sloped land adjacent to the I-190 off ramp.

Cost

The overall cost, prepared by the Black Rock – Riverside GNPA, for this option has not been provided.

Option 3: Modified Plan

This option includes a cover over Cornelius Creek and a broad range of recreational opportunities in order to attract a wide variety of user groups. It also features expanded and improved boater facilities. The following is a point by point explanation of features that are unique to this option:

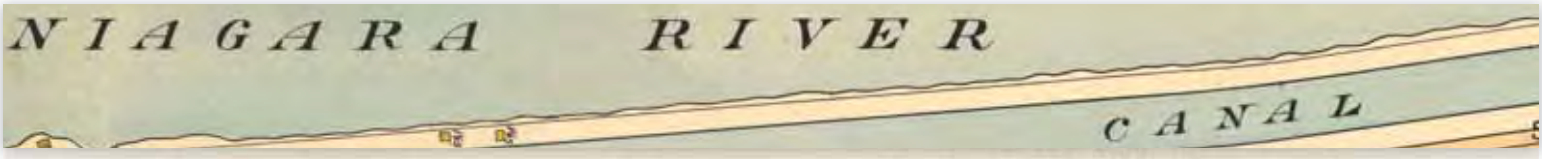
Roadway to the North

The road, which runs northward from the location of the existing concession building, has been terminated at a length of approximately two thirds of the existing road; the turnaround has been relocated to the new end of this road. Parking is located in three groups along the inland (I-190) side of the roadway, so as to maintain an open view of the water from the road. Parking is laid out in an angled configuration to reduce the required road width in this narrow space.

Given that the width from the I-190 right-of-way to the edge of the water is just over 60 feet and that the diameter of a turnaround for a conventional ambulance is also 60 feet, the walkway is cantilevered over the water; to allow adequate room for the turn around.

North of the relocated turnaround, the walkway can be brought behind the bulkhead wall and the cantilevered overhang is no longer needed. This area will have an abundance of newly created green space that will be much more attractive when viewed from the heavily traveled I-190.

Along the road, there are two parallel pathways: an eight foot bike path allows bikes to ride this part of the park free of conflicts with cars and pedestrians, and a twelve foot waterfront walkway is cantilevered over the water due to the limited space. The walkway has some areas that extend further over the water in order to create some variation from the straight edge and to create feature areas where a bench and/or interpretive panel can be located. The walkway surface is made of a mixture of materials from wood (or recycled wood/plastic such as Trex) boardwalk and a transparent material such as metal grating or Plexiglas panels that would allow light to reach the water below. The inland edge of the walkway has a seat wall, constructed of stone, to pick up the grade difference between the road and the bulkhead. A railing is located on the seat wall to prevent bicycles from toppling over onto the walkway.



Typical section along roadway to the north, featuring a cantilevered walkway, bike path and road with parking

Building

The building in this option is two stories at approximately 3,200 feet per floor, for a total of 6,400 square feet. The program for the space has not been fully resolved due to the uncertainty of whether a security-related agency such as the Erie County Sheriff will occupy part of the building, but it generally included restrooms, concessions, meeting rooms, parks department staff room, etc.

The image at left depicts the proposed cantilevered walkway, seat wall and bike path. The above image shows how the existing bulkhead and Riverwalk, currently look.

Pier Extension

This option includes a 300-foot extension of the existing pier. This will likely reduce the amount of debris that is carried into the boat launch ramp and will provide slips for approximately 35 boats.

Close-in view of the proposed building and pier extension.

Creek Cover

Cornelius Creek is covered in this option in order to reduce the sewer odor and to fill in the gap that bisects the park.

There are two primary goals for the design of the creek cover; the first is to be cost effective and the second is to ensure that the cover is removable. With this in mind, structural engineers from Fisher Associates designed a cover that features pre-manufactured Con/Span arches, which rest on an underground footing. The arches would be covered with earthen fill that is flush with the surrounding area. The arches could be removed in pieces if necessary. Not all of Cornelius Creek is covered in this option; approximately 50 feet is left open at the mouth, as requested by DEC and BSA, so that cleanup of floating debris could occur.

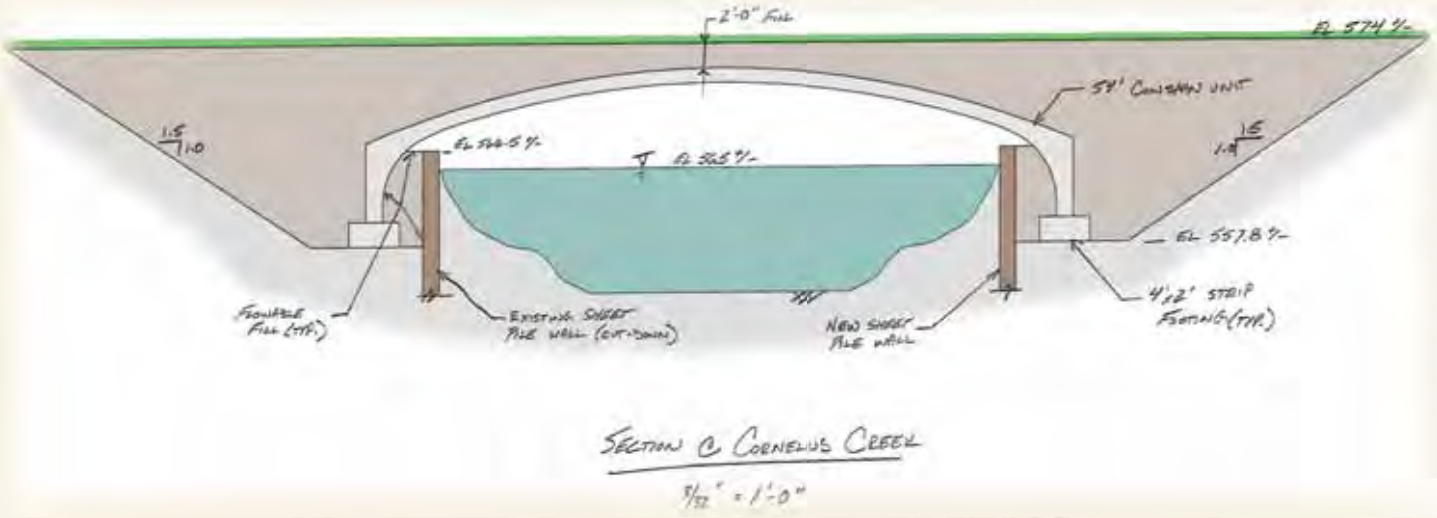
View of Dog Park and Picnic Shelter

Dog Park

A new dog park is proposed, which occupies a majority of the Cornelius Creek Park property. As shown, it encompasses just under one half acre. The dog park consists of a surfaced area and a shelter, enclosed by a fence. Some of those involved in the Feasibility Study process feel strongly that the dog park is a needed facility that would consistently draw a new group of users to the site.

Cost

The estimated cost for all components of Option 3 is $13 million. The total cost is broken down into components in the following Option Evaluation section and in Appendix 4.



Fisher Associates' Sketch of a Con/Span Arch Cover over Cornelius Creek

Option 4: Alternative Plan

This option features water-dependent recreational uses with an uncovered Cornelius Creek. The following is a description of items that are unique to this plan:

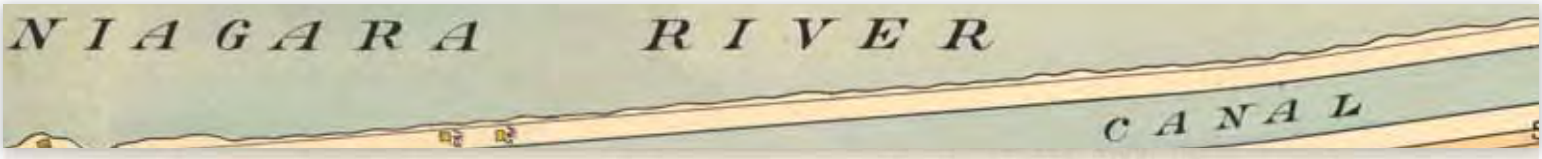
Roadway to the North

The solution for the roadway in this option is similar to the solution in the Modified Option, except that the road has been terminated at a length of approximately one half of the existing road (rather than two thirds). Parking is located in two groups along the inland (I-190) side of the roadway, so as to maintain an open view of the water from the road, and is laid out in an angled configuration to reduce the required road width in this narrow space.

Terminating the road at a shorter distance increases the amount of greenspace by about 200 feet. The tradeoff is that the distribution of parking space is more consolidated and it will be a longer walk to the north part of the site for a visitor who arrives by car.

In this option bicycles can choose to share either the roadway or the waterfront walkway. Cyclists that are commuters may choose to ride on the roadway, which is a smoother surface and provides less chance of a conflict with pedestrians, although they must watch for cars that are backing out of the parking spaces. Cyclists that use the walkway will travel slower since the surface is rough and there will be pedestrians present. This condition is similar to nearly all other segments of the Riverwalk, where bicycles share the 12 foot path with pedestrians.

The waterfront walkway has a winding, curvilinear layout and is located mostly inland from the bulkhead, except where the curvilinear layout extends over the bulkhead (utilizing a cantilever system) to create a few feature overlook areas. Space for the inland trail is made possible by eliminating the dedicated bicycle path, which



Typical section along roadway to the north, featuring a cantilevered walkway, bike path and road with parking

is provided in the Modified Option. The surface of the walkway is a mixture of wood (or recycled wood/plastic such as Trex) boardwalk, and concrete that is cut to resemble stone.

The image at left depicts the proposed inland walkway and roadway with parking; bicycles are able to use either one. The above image shows how the existing Riverwalk and roadway currently look.

Building

The building is a single story 2,200 square foot facility that will include restrooms, a parks storage/office area and a meeting room with vending machines. Parking for the building would be located in the main lot near the boat launch, which is only about 120 feet away via a new, wider pedestrian bridge that is also part of the Riverwalk pathway. Service vehicle access is available via a widened pathway that branches off of the entrance road between the I-190 overpasses.

Pier Extension

The existing pier is extended by 70 feet to reduce the inflow of debris that collects at the boat launch ramp. This would also have finger docks, which provide slips for up to 20 boats. Construction of the pier extension may be done using a "bin wall" system whereby a "curtain" of metal sheeting is suspended from a framework supported by piles driven into the bottom sediment. This would block debris from blowing in from the west and would create a calm bay for boaters while allowing the underwater currents to flow through preventing an accumulation of sediment behind the wall.

Outdoor Museum/Canal-themed Play Area

In this option, these two elements are combined; the outdoor museum features include exhibits that function as informal play structures.

Nautical Interpretive Feature

Near the terminus of Cornelius Creek is a nautical interpretive feature in the shape of a sunken boat. It will provide visitors with information about the shipwreck from the war of 1812, thought to be the HMS Detroit, that lies offshore (see chapter on Historic Context). It would also provide information about shipping in general on the Niagara River. The feature also acts as a gateway between the parking area and the waterfront walkway. The feature emulates the shape of a sunken ship with a shape and paving pattern that resemble a ship's structural ribs. Some of the "ribs" extend out of the ground to serve as supports for benches and posts for a series of interpretive panels. Stones protrude from the paving as if the boat were resting on the river bottom. Light poles with simple cylindrical luminaires evoke the masts of a sailing ship such as the HMS Detroit. These light poles would be visible from the Thruway and would likely become a well known landmark.

Dog Park

The Dog Park is very similar to that shown in the Modified Option.

New Pedestrian Bridge

This existing pedestrian bridge is replaced in the same location with a wider bridge that is more suitable for bicycle and pedestrian traffic - the existing bridge is only six feet wide.

Cornelius Creek

The sheet pile walls currently lining Cornelius Creek remain in place with riparian plantings on the south bank used to soften the appearance of the creek and allow it to have a more stream-like appearance. The dense plantings will also discourage visitors from reaching the water.

Cost

The estimated cost for all components of Option 4 is $4.7 million. The total cost is broken down into components in the following Option Evaluation section and in Appendix 4.

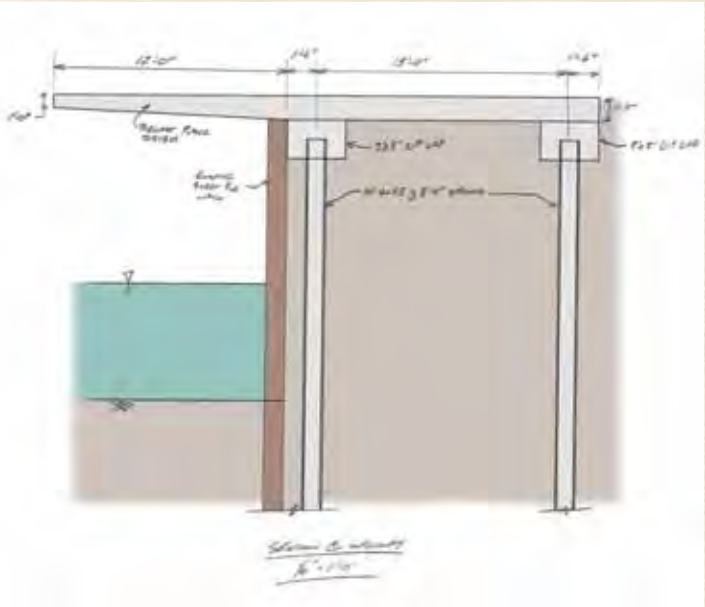
Close-in view of the the naturalized Cornelius Creek and

Common Details

There are some common elements among the design options:

Walkway Cantilever

Though the options vary in the amount and width of walkway that overhangs the water, all include some amount of overhang. Structural Engineers at Fisher Associates felt that the most practical and cost effective approach would be to build the overhanging walkway with cantilevered structural members. They felt that this will be less costly than the alternative of using pilings driven into the river and would avoid the possibility of ice damage. The structural member that overhangs the water would rest on a cast-in-place concrete cap atop a metal pile driven into the ground. This would prevent the structural member from resting on the existing sheet pile, which was not designed for loading. The back (inland) end of the structural member would also be secured to a cast-in place concrete cap over another pile. The walkway deck and railing would then be attached to the structural member. Using this configuration, an overhang of 18 or more feet can be achieved without drastically increasing the cost. The estimated cost of a walkway with 12 foot overhang is $2,700 per lineal foot and an 18 foot overhang is $3,200 per lineal foot.



Fisher Associates Sketch of a Cantilevered Walkway Structure

Railing

There will be a significant length of railing installed at the water's edge. Rather than creating a new style of railing used only at this site, it has been suggested, where feasible, to use the style that was recently installed at the Buffalo Inner Harbor, which is constructed of metal with a wood handrail.

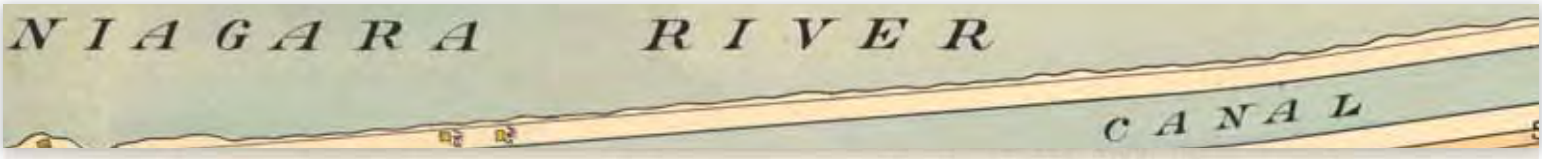
Railing at Buffalo Inner Harbor

Tree and Shrub Plantings

Trees, and to a lesser extent, shrubs will be used extensively to soften the harsh, open, paved quality of the site. The types of trees selected will need to be able to withstand driving winds and the salt spray from the I-190. Where feasible, native trees will be used. Trees will serve several purposes: they will provide a screen between I-190 and the park, provide shade, help break the wind, and greatly improve the appearance of the park. Trees that are located near the water's edge will have a tall trunk so as not to limit views. Shrubs will be used in areas that can be naturalized, such as along Cornelius Creek, along I-190, or in planters.

Outdoor Museum

This is a canal-themed collection of exhibits that educate visitors about the history of the canal. It would include some interpretive panels that are common in parks and some unique displays. The possibilities for displays are limitless and will be designed in the future, but possibilities include, sculptures, an imprint of a canal boat in the ground, interactive displays, maps, audio exhibits, etc.



Riverwalk at the Water's Edge

In all the options, the continuous waterfront trail along the Niagara River, known as Riverwalk, will be relocated closer to the water than its current location. This will allow Riverwalk users to enjoy the views over the water.

Off-site Parking

As stated in the chapter on 'Design Issues', at full build-out of both the Modified Plan and the Alternative Plan, onsite parking will not be adequate to handle to numbers of vehicles (both cars and cars with boats) that are likely to be present on peak days. It will then be necessary to provide parking either through a lease or purchase of nearby lands. Since no arrangement has been made with nearby land-owners, a design cannot be completed, however, a concept plan has been prepared to show a possible solution.

Picnic Shelters

All of the options encourage use of the park for picnicking and group gatherings by including shelters at various locations. The shelters will have a nautical appearance rather than a woodsy quality.

Entrance Road

In all options, there is an improved, more welcoming entrance road off Niagara Street. The entry's visibility is improved by creating a prominent sign announcing the entry to Black Rock Canal Park. There are also tree plantings and a widened walkway. As a visitor approaches the park and goes under the I-190 overpasses, the chain link fence will be removed, opening up a view toward the Niagara River.

Possible Off-site Parking Configurations

View of Possible Entrance Road Improvements
Enlarged View of Sign Below

Sustainable Practices

Based on the goals and objectives established for Black Rock Canal Park, all of the options (except the no action) will incorporate a number of practices that provide an environmental benefit over conventional practices. This project will be a showcase of environmentally friendly technology and will set the standard for other park projects.

LED Lighting

LED light fixtures are now available in classic styles.

This is a new technology that is just now coming into use for outdoor lighting. LED (Light Emitting Diode) lighting presents advantages over other light sources including lower energy consumption, longer life, smaller size, faster switching, and greater durability and reliability. However, they are more expensive and require more precise current and heat management than traditional light sources. Fixtures come in a wide variety of styles from traditional gas lamp styled luminaires to the ultra modern. This project can utilize LED lighting for parking and roadway illumination, for accent lighting along the waterfront walkway and inside the building.

Solar Lighting

The technology for solar-powered lighting has come a long way in recent years though it is not yet suitable as a primary year-round lighting source. It would, however, be adequate for low-level pathside lighting allowing pedestrians to see the edge of the path without overwhelming them with brilliant light. There are a host of solar-powered bollard style lights available.

Increase of Greenspace

This project will significantly reduce the amount of existing paved surface and increase the amount of greenspace, which will include areas that are mowed lawn, un-mowed grasses, and new plantings of trees and shrubs. Where practical, native plantings will be used, as well as plantings that provide a benefit for wildlife through the creation of food or cover.

Active and Passive Solar Building Features

Technology for incorporating solar panels for the heating of air or water will be investigated for use in this project. Roof lines and windows will be designed to maximize the potential for passive solar gain during winter while shading the interior during the summer.

Stormwater Filtration

It is the intent of this project to meet and exceed New York State's requirements for stormwater quantity and quality controls. This project will:

- Use porous paving materials in areas where the project is not simply resurfacing existing paving
- Collect site stormwater and building roof runoff for use as irrigation water by installing an underground stormwater storage cistern
- Channel runoff from paved areas through vegetated swales, to collect sediment and other contaminants
- Feature surface stormwater temporary storage (retention) areas that are designed as site amenities rather than utilitarian necessities

Bioswales, or vegetated swales, help remove silt and pollutants from stormwater runoff (left).

image source: www.windsorheights.org

Recycled and Local Materials

Where practical, the project will use locally based materials such as stone quarried nearby, locally made building material and locally grown trees. Recycled materials could include the use of slag or flowable fill manufactured with fly ash from local industries. Sub-base stone (for use under paving) may incorporate recycled, crushed concrete. Surfacing for play areas can use wood chips derived from scrap wood such as pallets. Decking could be constructed from a recycled wood/

plastic composite product such as Trex brand decking.

Geothermal Heating

This is an energy efficient technology that uses the temperature of the ground as a heating and cooling source. It involves drilling wells and installing pipes to create a geothermal loop. A heat pump is then used to pump fluid through the loop to heat or cool it.

Concrete Building Construction

Concrete is increasingly being used to construct new buildings. The advantages are the added durability and energy efficiency. New technology such as insulating concrete forms (ICFs) utilized pre-manufactured forms that stay in place and fresh concrete poured on site. This is considered a "green" technology since it is manufactured from local abundant natural resources and fly ash, a coal byproduct, without wood or products containing volatile organic compounds (VOCs).

Green Roof

A green roof is a roof of a building that is covered with vegetation and a growing medium, planted over a waterproofing membrane. Green roofs serve several purposes for a building, such as absorbing rainwater, providing insulation, creating a habitat for wildlife, and helping to lower urban air temperatures and combat the heat island effect.

Wind Energy

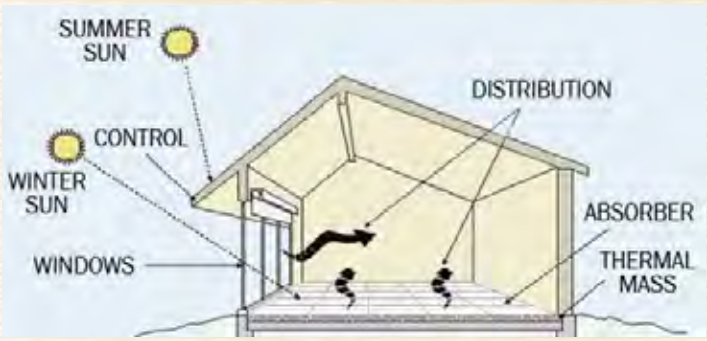
Another technology that can be utilized is the use of wind to generate electricity for the building using a wind turbine. There are several companies that make smaller non-utility turbines such as PacWind that sells a small vertical axis turbine in units that take very little space. Such turbines are a powerful tool for demonstrating wind energy technology.

Solar-powered Trash Compactors

In an effort to save resources, trash receptacles with solar-power compactors should be installed. This reduces the frequency of trash pickups saving on the labor and fuel required for more frequent pickups. According to an article in the Philadelphia Daily News, the City of Philadelphia has installed nearly 500 Big Belly solar trash compactors which eliminated the need for 24 positions since the compacting receptacles will hold five times the amount of trash than conventional receptacles greatly reducing the frequency of pickups.

Education

The sustainable practices described above will provide environmental benefits on their own, but a way to go one step further is to inform park visitors about the sustainable practices that have been employed. For example, a visitor may not be aware that the lighting is LED unless informed. The project will feature a series of interpretive panels or exhibits that will let visitors know about these practices and how they can be utilized on other projects or at their own homes.



Passive solar features capitalize on the warmth of the sun in winter months, above. Active solar features, like the hot water system at right, use solar panels to collect solar energy.

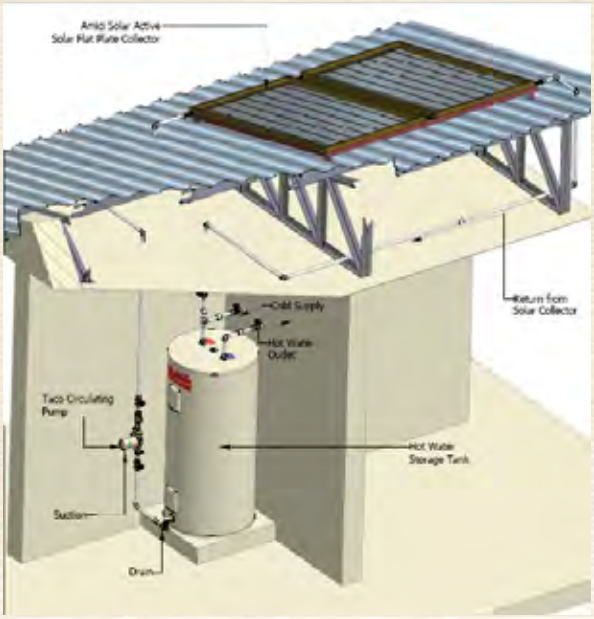


image source: www.amici.com

Interpretation Concept

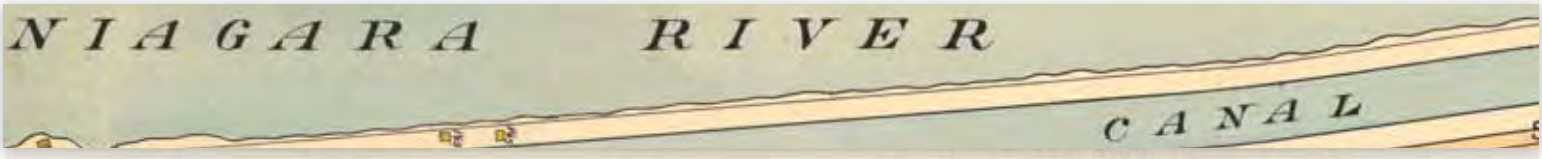
In all options for improvements at Black Rock Canal Park, there is an extensive interpretation program proposed. Visitors will be informed about numerous characteristics of the site that will increase their appreciation for, end enjoyment of, the park. Each option has interpretive features that are slightly different but there is a common thread in the stories to be told. Following is a description of several themes for interpretation.

Erie Canal

The very name Black Rock Canal Park raises the question; what canal? It is not apparent to the casual visitor that the Erie Canal once ran along the inland edge of the park property. The story could

Parking/Creek Area – Total	**$8,683,380**
Demolition	$43,458
Creek Cover	$3,781,200
Drainage	$19,248
Waterfront Features	$418,650
Furnishings, Exhibits	$481,410
Landscape Improvements	$26,760
Parking/Road Paving	$263,454
Building 2 Story 6,400 SF	$2,155,200
Pier Extension	$1,494,000
Cornelius Creek Park Area – Total	**$498,432**
Demolition	$33,834
Grading and Trail	$99,660
Furnishings, Exhibits	$244,200
Landscape Improvements	40,050
Dog Park	$53,088
Utilities	27,600
Entry Road – Total	**$102,426**
Demolition	$9,480

Project Options	Project Features	Regulatory Authorities		
		Federal Section 10 River and Harbor Act 1899	Federal Section 404 Clean Water Act	New York State Article 15
Black Rock-Riverside GNPA Concept	Concrete deck over water Covered creek 70' pier extension	X	_	X
Modified Plan	Covered creek Overhanging Walkway 300' Pier extension	X	_	X
Alternative Plan	New Pedestrian Bridge Walkway bumpouts 100' pier extension	X	_	X



be told by using interpretive panels that include some of the numerous photos of the canal in this area and perhaps an aerial photo of current conditions with the historic canal route superimposed onto it. A map of the greater canal network in New York State would put the site into a larger context. Another aspect to the story is the human side of life on the canal; the canal boat captains and their families (including children) that traveled from port to port.

Shipwreck and the War of 1812

There are a number of battle sites from the War of 1812 proximate to Black Rock Canal Park. In particular, the ship (thought to be the HMS Detroit – see Chapter on Historic Context) that lies at the bottom of the Niagara just offshore from the park, provides an opportunity to inform visitors about the far-reaching events of the war that happened locally.

Seaway Trail

The Seaway Trail (a National Recreation Trail) is a roadway route that parallels 518 miles of shoreline along the St. Lawrence River, Lake Ontario, Niagara River and Lake Erie in New York and Pennsylvania. Niagara Street, at the entrance to Black Rock Canal Park, is part of the Seaway Trail. A description and map of the Seaway Trail could be included in the interpretive program for the park. Like the description of the Erie Canal system, this would put the park into a much larger context and allow visitors to see that this location is, and always has been, along a strategic route that has been used for millennia. Seaway Trail Inc. has a standard style kiosk that they install at numerous locations along the route and they may be able to install one at this site for little or no cost to the project.

Sustainability

As previously described, there is a stated desire for the development of this park to be a model of sustainable practices. From energy efficiency, to the use of local and recycled materials; this project will be a showcase of sustainable practices. And while the environmental benefits will be many, it will be equally important to inform visitors of these practices and their benefits since it may not be readily apparent.

Option Evaluations

The feasibility of the major components of the options for the park is evaluated below based on the following:

- *Cost*
- *Regulatory Review Requirements*
- *Spatial Analysis*

The evaluation of each option is broken down into the various park components so that they can be intermingled to create a viable Phase 1 Plan. The evaluations are not intended to be ratings of one entire option versus another.

Cost

The cost for each of the two new options (Modified Plan and Alternative Plan) is presented by components and arranged according to the geographic area of each component. The No Action Option has no cost and for the Black Rock - Riverside RGNPA Option, only the total estimated cost of $16 million is known; a detailed breakdown is not available. Costs are in year 2010 dollars and include New York State Prevailing Wage Rates for labor and a 20 percent contingency to cover miscellaneous contractor costs such as mobilization, stakeout and unknown complications. Detailed cost worksheets are included in the Appendix of this report.

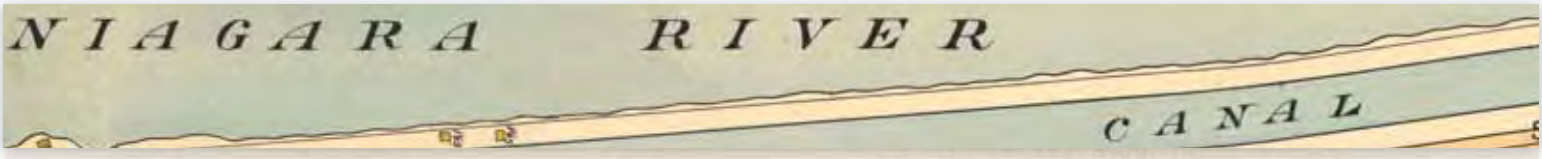
Modified Plan

Total Cost - $12,985,484

Improvements	$85,026
Road to the North - Total	**$4,184,816**
Demolition	$81,254
Road Construction	$293,982
Cantilevered Walkway 820 LF	$2,933,040
Waterfront Path/Enhancements	$755,040
Landscape Improvements	$121,500

Item	Existing Conditions	2008 Black Rock - Riverside GNPA Concept
Water Surface within Property	3.5 acres	1.5 acres
Water Shoreline Length	2,990LF	2,890 LF
Water's Edge	40 LF at boat launch	40 LF at boat launch 70 LF at jet ski dock
Land Surface Total	5.6 acres	7.4 acres
Hardspace Area	3.5 acres	3.8 acres
Green Area	2.1 acres	3.6 acres (w/ 0.8 acre over lake)
Building Area	1,000 SF restroom/concession	6,000 SF mixed-use facility, 2 picnic shelters
On-Site Parking Spaces	cars ~ 78 boats ~ 9	cars - 66 boats - 18 security - 15
Boat Slips	-	2 boats (reserved) 10 jet skis
Road Length	2,050 LF	2,050 LF
Pier Length	40 LF	110 LF (70 LF extention)
Pedestrian Walk	1,850 LF	560 LF
Bike/Pedestrian Path	570	350 LF
Bike Path	0	1,310 LF
Overhanging Walk	-	1,510 LF 2 separate areas
Park Space Over Water	minimal (pedestrian bridge)	2 acres (1.1 ac grass/walk) (0.5 ac boardwalk/pier) (0.4 ac cover creek)

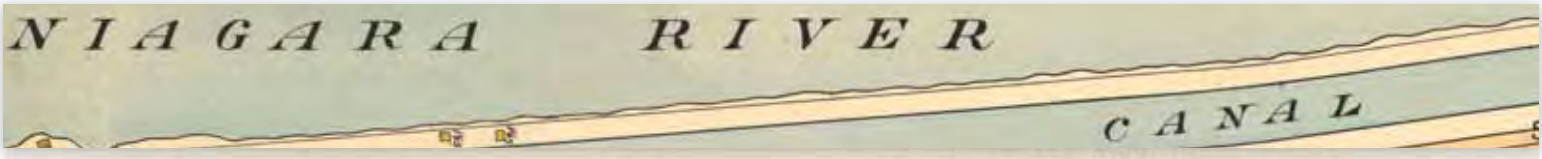
Note: values are approximate



Modified Plan	Alternative Plan	Notes
3.3acres	3.4 acres	As outlined by tax parcels
3,110 LF	3,580 LF	Land / water interface
	35 LF at boat launch 715 LF at river access areas 50 at creek access	Where one may 'touch' the water from land
5.8 acres	5.7 acres	
3.4 acres	3.3 acres	Asphalt, concrete, etc.
2.5 acres	2.4 acres	Where 'soil' exists
6,300 SF mixed-use facility, 3 picnic shelters, fishing hut	4,200 SF mixed-use facility, 3 shelters, fishing hut	Figure is for square footage of land occupied
cars - 54 boats - 10	cars - 31 boats - 8	Parking areas on existing plan obscure & not well organized
36	20	
1,600 LF	1,400 LF	Includes entry road and road to north
340 LF (300 LF extention)	110 LF (70 LF extention)	
1,600 LF	730 LF	
920 LF	1790 LF	
1,600 LF	730 LF	
740 LF	-	
0.2 acre (creek cover)	minimal (pedestrian bridge, overlooks)	Not Including Overhanging Walkway

Alternative Plan
Total Cost - $4,716,278

Parking / Creek Area Total $3,128,202


NIAGARA RIVER
CANAL

Demolition

$83,598
Drainage
$23,448
Waterfront Features
$755,070
Furnishings, Exhibits
$96,360
Landscape Improvements
$50,710
Parking/Road Paving
$132,444
Building – 2000 SF

$702,600	
Pier Extension	$422,400
Cornelius Creek Park Area Total	**$480,084**
Demolition	$33,834
Grading and Trail	$144,360
Furnishings, Exhibits	$229,440
Landscape Improvements	$44,850
Utilities	$27,600
Entry Road – Total	**$102,426**
Demolition	$9,480
Improvements	$85,026
Road to the North - Total	**1,798,496**
Demolition	$81,240
Road Construction	$308,742
Cantilevered Bumpouts	$360,000
Waterfront Path/Enhancements	$851,340
Landscape Improvements	$99,000

Regulatory Review Requirements

Evaluating the feasibility of the various options requires an understanding of whether or not it may be difficult to

get certain actions approved by the various regulatory agencies. The chart below summarizes the actions from the options that may cause the project to be slowed or possibly to not be approved. (The No Action Option would not involve any regulatory review.)

The chart lists actions that may require a permit from the NYSDEC and/or the US Army Corps such as Section 10 or 404 permits . Permit application must include detailed plans of the work proposed for the streambed and banks; this means that the design of the project must be resolved before the application can be filed. Though the requirements for the permit are not onerous, the review time can be lengthy, often six months or more. Therefore, it is important to file as early as possible once the design is resolved.

Spatial Analysis

The last method used to evaluate the options for Black Rock Canal Park is a Spatial Analysis, which is simply a measurement of the various activities, areas, distances, and numbers of nearly anything that can be quantified. The Spatial Analysis is helpful to use as a reference for quantities between the options. It does not draw conclusion about which option is better based on quantities. For example it may show that one option has 50 parking spaces while another has 60 but leaves the reader to decide whether 50 or 60 is more appropriate based on a variety of other inter-related factors.

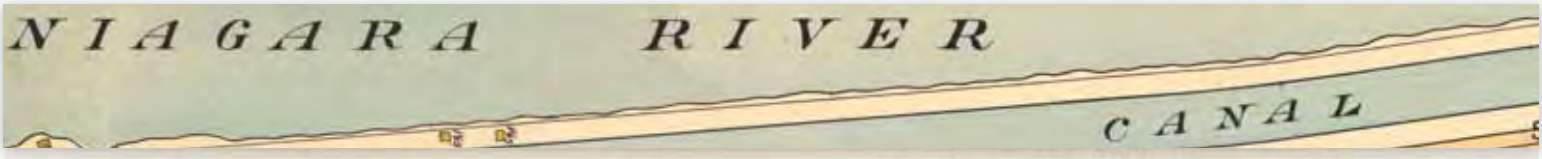
Modified/new multi-use trail

4.0 Context

Regional Context

The site for Black Rock Canal Park, currently occupied by the Ontario Street Boat Launch and Cornelius Creek Park, is located at a highly visible location between the Niagara River and Interstate190 (the Niagara Section of the New York State Thruway) in the vicinity of the Black Rock and Riverside neighborhoods of Buffalo, New York. According the Greater Buffalo Niagara Regional Transportation Council (GBNRTC), over 69,000 vehicles drive past the park site on I-190 each day. Many of these vehicles are driven by visitors to the area who are getting a first impression of the City of Buffalo and its waterfront. And while the mighty Niagara River is always scenic, the Ontario Street Boat Launch in the foreground leaves much to be desired.

The Black Rock Canal Park site is located along a string of waterfront parks that include the Bird Island Pier, Broderick Park, Squaw Island Park, and Tow Path Park. However, none of these parks offer the ability for members of the public to launch a boat. The nearest public launch downriver to the north is located at the foot of Sheridan Drive at Aqua Lane Park in the Town of Tonawanda, approximately two miles away. To the south, the nearest public launch is at Erie Basin Marina in downtown Buffalo, approximately five miles away.



Historic Context

The historic Village of Black Rock extended along the Niagara River from the location of the former black rock (in the vicinity of today's Niagara and School Streets) north, past Scajaquada Creek, to Austin Street. The namesake black rock was a huge wedge of dark limestone that projected at a northwesterly angle into the Niagara River. Its flat surface was 200 feet wide at its northern end and rose four or five feet above the normal level of the river, forming a natural pier and protected harbor.[1]

Settlement began in the area after New York State, in 1802, secured title from the Iroquois to a mile-wide strip of land along the length of the Niagara River. The area near the black rock became known as Upper Black Rock, while, downriver, the area north of Scajaquada Creek became known as Lower Black Rock. The Village of Black Rock was founded in 1813 and incorporated as a village in 1839. At the same time that settlement was occurring in Black Rock, the future Village of Buffalo was beginning at the mouth of the Buffalo River. The two villages became partners and rivals.

Black Rock in 1825 (shows Upper Black Rock and the south end of Squaw Island)
from The Picture Book of Earlier Buffalo, Severance, Frank H., ed., Buffalo Historical Society, Vol. 16, 1912.

Several battles of the War of 1812 were fought in Black Rock and Buffalo. The war was fought between the United States and Great Britain from June 1812 to the spring of 1815, although the peace treaty ending the war was signed in Europe in December 1814. Since the end of the American Revolution in 1783, the United States had been irritated by the failure of the British to withdraw from American territory along the Great Lakes, by the British backing of the Indians on America's frontiers, and by the unwillingness of the British to sign commercial agreements favorable to the United States.[2] The United States at first attempted to change these policies by economic means, which proved unsuccessful, and so in 1812 resorted to war. Black Rock devoted most of its manpower to the defense of its naval yards on Scajaquada Creek. Both Black Rock and Buffalo were torched by British invaders in December 1813, but were rebuilt.

The Villages of Black Rock and Buffalo competed to become the western terminus of the Erie Canal. Buffalo, for reasons that included larger harbor capacity and greater distance from the shores of Canada (an antagonist during the War of 1812), eventually won the distinction and the advantages it afforded.[3] The black rock was blasted away in the early 1820s for the construction of the Erie Canal.

The Black Rock harbor and channel provided a protected waterway around the reefs, rapids and fast currents that existed in the upstream portion of the Niagara River. By 1825, a pier and lock was constructed across the channel between Squaw Island and the mainland, in conjunction with the construction of the Erie Canal. This elevated the water level in the channel to the level of Lake Erie, which was four to five feet higher than the Niagara River in that section. Mills and factories located along the Niagara River and Scajaquada Creek to take advantage of water power thus created.

1 Suozzi, Paul. Black Rock Chronicle. Landmark Society of the Niagara Frontier. Posterlet.

2 "The War of 1812 and Black Rock's Roll". Black Rock Advocate. 28 October 2009 <http://blackrockadvocate.blogspot.com>

3 "Black Rock, Buffalo, New York." Wikipedia. 28 October 2009 <http://en.wikipedia.org/wiki/ Black_Rock,_Buffalo,_New_York>.

Context

In 1833 a lock (Lock #72) was built in the Erie Canal near the foot of Austin Street, which fostered the growth of the Black Rock community north of Scajaquada Creek. The water power from the Black Rock channel, the Erie Canal and the development of railroad corridors advanced the presence of milling and other industry in Black Rock.

Erie Canal Lock #72 in Black Rock, ca. 1900
from Diversion of Water from the Great Lakes and Niagara River, United States. Army. Corps of Engineers, James Goold Warren, United States Board of Engineers for Rivers and Harbors, 1921.

Buffalo continued to grow and prosper due to the advantages afforded by Lake Erie, the Erie Canal, and early railroads. The city annexed Black Rock in 1854. The Lower Black Rock area retained its identity and its name over time and is known as the Black Rock neighborhood today.

In the 1870s, the International Railway Bridge, an engineering marvel at the time, connected the US and Canada at Black Rock. The Black Rock Rail Yard handled passenger service and commercial transport of goods to and from Canada. Following the completion of the St. Lawrence Seaway, the construction of the US interstate highway system, Canada's Queen Elizabeth highway, and the increase of commercial air travel, the Black Rock Rail Yard lost its passenger service and later most of its commercial freight service. The railroad bridge, however, remains in heavy usage and is one of the most important rail crossings between the US and Canada.[4]

Until the late 1800s, the area north of today's Hertel Avenue was mostly farmland, except for development directly along the Niagara River and Erie Canal. With Black Rock developing as an industrial center, many

Black Rock Lock between the mainland and Squaw Island pictured ca. 1910 (above) and today (below). The International Railroad Brdige is seen in the background of each.
image sources: postcard ca. 1910 from eriecanal.org, photo of the Black Rock Lock today from buffaloh.com

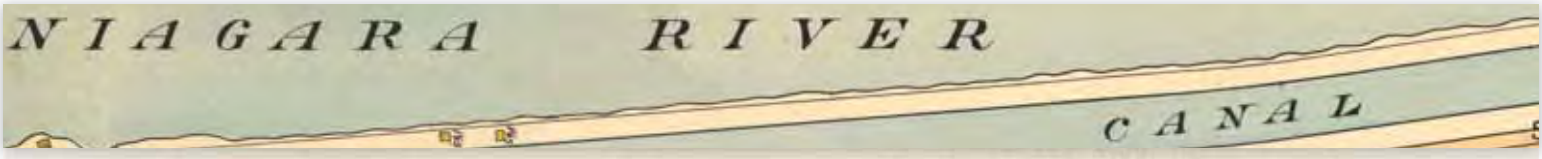
families began moving to less industrialized areas to the north. There, Buffalo's Riverside neighborhood offered a beautiful riverfront location that was a short trolley ride north of the Black Rock factories.[5]

The Erie Canal, once so busy, was abandoned in 1918. It was polluted and considered a menace to safety in the 1920s and 1930s. In the 1930-40s, the canal was filled in between Buffalo and Tonawanda.[6] The Niagara Section (I-190) of the NYS Thruway was build atop the former Erie Canal in the late 1950s. I-190 created a physical barrier between the river and the neighborhoods of Black Rock and Riverside, whose early development was so closely tied to the river.

4 "Black Rock, Buffalo, New York." Wikipedia. 28 October 2009 <http://en.wikipedia.org/wiki/ Black_Rock,_Buffalo,_New_York>.

5 Black Rock-Riverside Good Neighbors' Planning Alliance. Building a Neighborhood of Choice: A Neighborhood Plan for the Riverside Planning Community. January 2007. 17 p.

6 "Pollution, Depression, World War II, Exotics". Western New York Heritage Press. <http://wnyheritagepress.org/ features/ canalsidebar.htm>



Ship Wreck

There is a ship wreck recorded offshore from the boat launch about mid way across the Niagara River. According to nautical charts it is in about nineteen feet of water. The ship wreck is most likely one of the two known War of 1812 wrecks located in the vicinity. The vessel, which is 40 – 50 feet long, has a double planked oak hull and shows evidence of a fire on board. When divers discovered the remains in 1963, they found several cannons and 22 muskets made by John Miler, Bordentown, NJ in 1808.[7]

The wreck is most likely the 100 ton US brig Adams (later renamed HMS Detroit) built in 1802 by the US government. This vessel was lost to the British when Gen Hull surrendered at Detroit, and was renamed HMS Detroit. US Lieutenant Elliot recaptured her at Fort Erie in October 1812. The battle exhausted all Elliot's ammunition so they cut the anchor cable and drifted till they stranded on Squaw Island "near the American side". Prisoners and the Detroit's crew got to the American side in small boats. Seven British soldiers tried to burn the vessel but were driven off. The ship could not be got off so Elliot burned her.[8]

HMS Detroit
painting by E.A Hodgkinson

7 Georgann Wachter (Wachter@eriewrecks.com). "Re: FW: Shipwreck Inquiry – Niagara River". E-mail to Brendon Baillod (BBaillod@glhec.org) and Molly Vendura (mvendura@pjscompany.com). 5 October 2009.

8 Mansfield, John Brandt, ed., History of the Great Lakes. Volume I, Chicago: J. H. Beers & Co., 1899, 132 and 141 p.

Archaeology

An archaeological assessment of the Black Rock Canal Park property has not been completed as part of this project. The site has been significantly altered over the years. The first significant disturbance occurred when the Erie Canal was excavated. In the mid 1900s, the Niagara Section of the New York State Thruway was constructed over the route of the canal. The Ontario Street Boat Launch itself is constructed on fill behind the sheet pile bulkhead that forms its edge.

Potential Users

Local Residents

Black Rock Canal Park is located in a heavily populated area; per the 2000 Census, the US population within a two mile radius was approximately 38,000. The City of Buffalo itself had a population over 292,000 per the 2000 Census and the current population is estimated to be approximately 271,000.

Visitors

Black Rock Canal Park has the opportunity to attract a diversity of users. Currently the park is frequented by boaters, anglers, people seeking to view the river, and people biking along the Riverwalk. Some divers currently use the boat launch to enter the river. Proposed improvements to the park will make it more accessible to boaters, including paddlers and users of motor boats, and a proposed store on site catering to divers' and boaters' needs will provide an additional amenity. Anglers will have a more diverse choice of spots from which to fish. Sightseers currently use the park to view the Niagara River; additional amenities such as opportunities to view and learn about aquatic life, an improved physical setting, and an attractive well marked entrance will attract additional sightseers to the park. The addition of interpretative materials about the development of Black Rock, Riverside, the City of Buffalo, the Erie Canal, and the Seaway Trail will make the park marketable and more attractive to culture and heritage tourists. Promotional materials about the Erie Canalway National Heritage Corridor and the Seaway Trail (including the Dive the Seaway Trail program) could be utilized to promote the park and attract visitors.

5.0 The Site

Project Limits

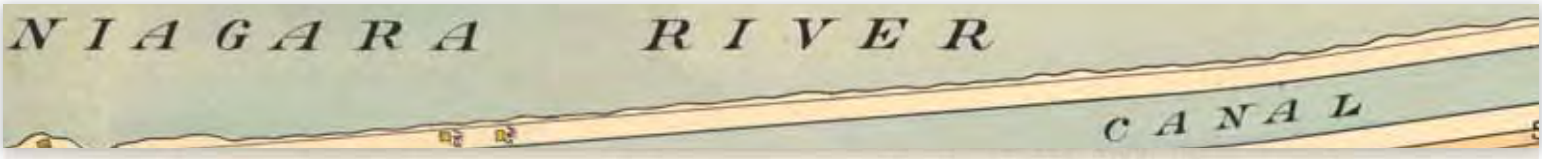
At the outset of any planning project, it is helpful to prepare a study area boundary even though it is imperative to consider the greater context; in this case the Black Rock Riverside community as well as the Buffalo Niagara region. There are two boundaries that define the Black Rock Canal Park project.

Property Boundary

The first boundary to consider is simply the limit of the publicly-owned property. There are several individual parcels that comprise the property that combine to form what we will call the Property Boundary. Proposed physical improvements will take place within this boundary with some exceptions. The specific parcels within the Property Boundary include the Cornelius Creek Park property, the entry road right-of-way, and the boat ramp property. The boat ramp was conveyed to Erie County from the City of Buffalo in an agreement dated June 20, 2000 with a stated purpose, "...to further development of the site for park and recreation purposes available to all residents of Erie County and to promote access to the region's waterfront".

Study Area

The second boundary that is part of this project is the Study Area. The Study Area includes private lands that are in close proximity to the project boundary. This boundary defines the area that will be considered for improvements that can be done with the agreement of the land-owner by leasing the property or by outright purchase if it is important enough to the success of the project. In the event that a lease or purchase of adjacent lands is completed, that property will become part of the Property Boundary described above.



General Site Conditions

The future Black Rock Canal Park property is currently two adjoining properties – the Ontario Street Boat Launch and Cornelius Creek Park, which are separated by Cornelius Creek. Both properties are in a general state of disrepair and, considering their prominent location, receive little use. Both properties are linked by the Riverwalk, a waterfront multi-use trail that connects downtown Buffalo with Gratwick Park in North Tonawanda.

Ontario Street Boat Launch

This portion of the site consists of a large parking lot that is paved to all edges with only two small planters to break up the expanse. The west edge of the parking along the Niagara River has a sheet pile bulkhead topped by a railing that is broken is several areas. It is frequently used by anglers who like to be near their vehicles and by people in vehicles just enjoying the view of the Niagara. The boat launch ramp and parking area were renovated in 1990. The actual sloped boat launch ramp is in reasonable shape despite its age.

The Site

There is a small wood dock where the bulkhead turns east toward the boat launch that should be replaced since it is warped and does not connect with the adjacent grade.

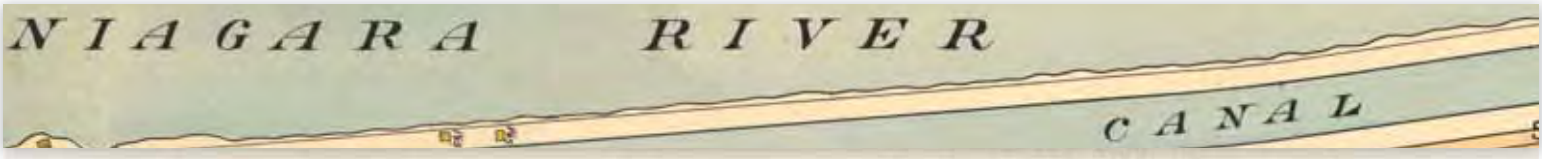
The building known as the “Snack Shack” or “Little Terks” is not open or occupied and has some signs of spray paint vandalism that has been painted over.

A quick visual inspection of the parking area shows that the paving seems to be stable and solid except immediately behind the bulkhead where it regularly sinks and is an on-going maintenance concern.

Part of the Ontario Street Boat launch is the access road known as the Riverside Access Road. This part of the site consists simply of a two-lane asphalt road, approximately 35’ wide, with a parallel parking lane on the west side. West of the road is a narrow (10’) strip of grass and a concrete walkway at the water’s edge about four feet wide with a metal pipe railing. This roadway terminates in a turnaround at the north end. In this area the Riverwalk runs along the shoulders of the riverside access road and is not separated from vehicle traffic.

Looking north along the access road, above, and south along the access road towards the boat launch, below. Note the marked bike lanes of the Riverwalk and parking.

A view of the turn around at the north end of the access road.



Cornelius Creek Park

Like the boat launch, Cornelius Creek Park was renovated in 1990. That renovation included placement of the pedestrian bridge, walkways, railing and benches. Unfortunately that renovation did not do enough to encourage access and the park has been severely neglected in recent years. All benches and furnishings have been removed and the Riverwalk trail along the east edge of the park is buckled and heaved making it unsafe for users such as bicycles and skaters. The river's edge in this area is made up of very large stones that are carefully placed to form a roughly even slope surfaced. Other than Riverwalk users, the park gets very little use except for an occasional pedestrian walking along the river's edge.

Looking into Corneluus Creek park from the pedestrian bridge,

Looking across the pedestrian bridge from the boat launch parking area into Cornelius Creek Park

A view of the mouth of Cornelius Creek, the pedestrian bridge and Cornelius Creek Park from the Niagara River. The south end of the boat launch parking area is visible at the left side of the picture.

Cornelius Creek

Cornelius Creek is an urban creek that was piped underground in the early 1900s. It runs east, through Riverside to the park, where it emerges at the west end of the park entrance road. The creek divides the park before flowing into the NiagaraRiver. The banks are a mix of concrete walls, metal sheet pile and large rip rap stones.

The above graphic illustrates the historical alignment of the Niagara River shoreline, the Eric Canal (running north-south parallel to the Niagara River) and Cornelius Creek (running east-west) superimposed on a current aerial photograph. The Erie Canal followed the route of the I-190. Cornelius Creek emptied into the Erie Canal. The park generally occupies land that was created from fill since 1894.

Cornelius Creek is the discharge point of a combined sewer overflow (CSO) and has serious water quality problems. It is the largest of the 52 permitted CSOs in the City of Buffalo, handling about 20% of the total City-wide CSO flow. The area that it covers is about 5,000 acres and extends all the way to the SUNY at Buffalo Main Street campus. When the volume of untreated sewage is too much for the sanitary sewer system, sewage spills over a regulator weir/dam into Cornelius Creek. When the CSO does not spill, Cornelius Creek acts as a storm sewer collecting rain and snow melt runoff from the streets. The Buffalo Sewer Authority (BSA) and the DEC are called at times to contain and/or remove floatable debris and other contaminants and the creek has a strong sewer odor at times. In spite of this, it is occasionally used for fishing and by local teens that dive from the pedestrian bridge.

The future of a cleanup of Cornelius Creek is uncertain at this point. The BSA, which is responsible for the CSOs city-wide, is aware of the problem at Cornelius Creek, but currently does not have adequate funding to make corrections. The US Environmental Protection Agency (EPA) and the DEC have mandated the city to address the CSO problem and are negotiating a consent order with BSA as of the spring of 2010. Once the consent order is in place, BSA will establish a list of priority projects based on cost effectiveness and political direction.

Cornelius Creek emerges from below ground via a box culvert under the park entrance road, below.

Sheet Pile Wall

Engineers at Fisher Associates performed an above water visual inspection on December 8, 2009 to assess the condition of the sheet pile bulkhead at Black Rock Canal Park. The inspection was performed by both an engineer in a boat and an engineer walking along the top of the wall. The report indicates that the wall was generally in very good condition. An Above Water Inspection Report is included in the Appendix section of this report.

The wall consists of a Z-style 3/8 inch thick interlocked steel sheet pile cantilevered retaining wall measuring approximately 2,200 feet long. The sheet piles are generally capped using a steel channel and a concrete overlay. There is one section of wall near the boat launch that has some deflection but this appears to be an as-constructed condition and not the result of damage.

View of top of wall from north end of park looking south.

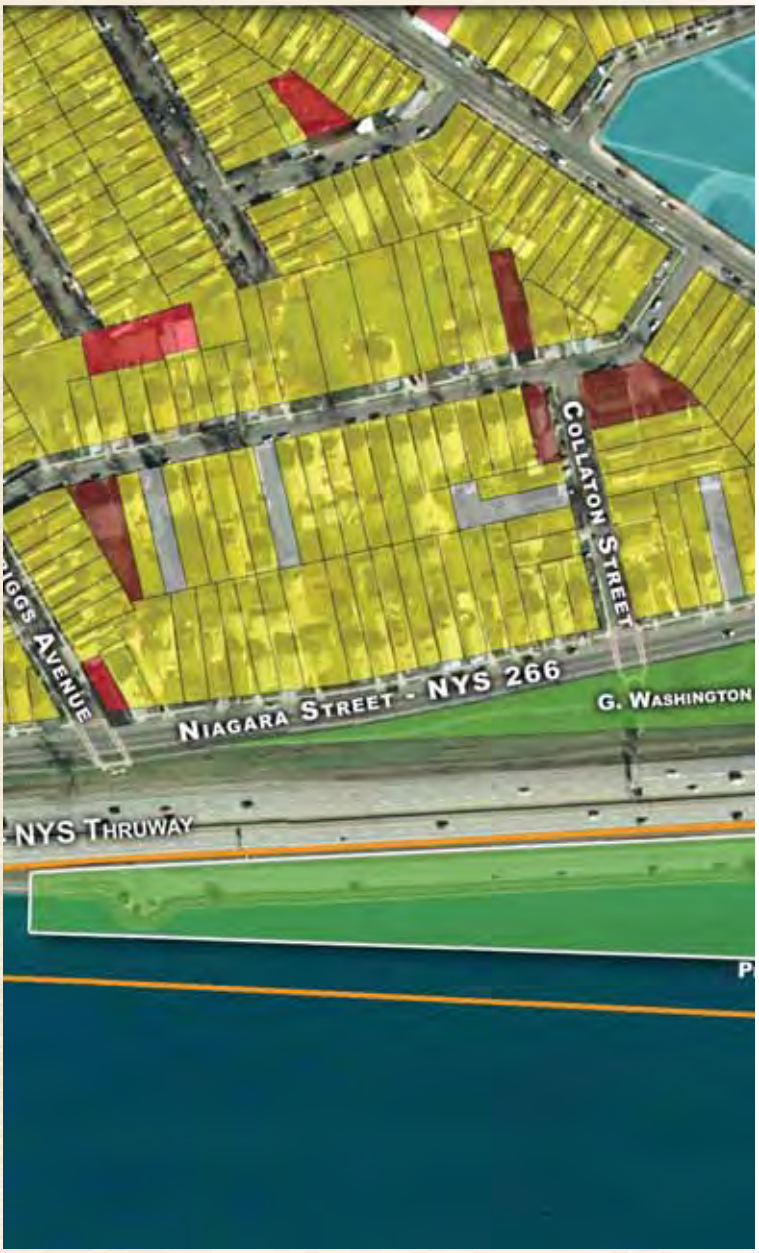
View of wall from parking lot looking north.

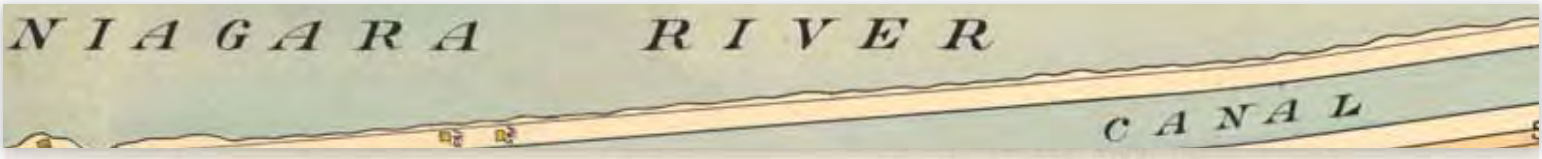
View of north creek wall and pedestrian bridge over mouth of Cornelius Creek.

Surrounding Land Use

There are a variety of land uses around Black Rock Canal Park. Niagara Street(NYS Route 266) has predominately commercial uses in the vicinity of the park entrance, with a auto repair shop north of the park entry road and a Kwik Fill gas station to the south. On the opposite (east) side of Niagara Street, there is a commercial plaza with Tim Horton's, Advanced Auto and Family Dollar stores, among others. There are several vacant lots in the vicinity of the park's entry road that are likely to become more valuable once progress on Black Rock Canal Park begins. Outside the commercial area along the east side of Niagara Street is the Riverside neighborhood, which is comprised of mostly two story historic homes. And finally, south of the park site is Harry's Harbour Place restaurant and marina, which is a well known up-scale eatery. The marina is private and does not include transient slips for restaurant customers.

East of Niagara Street, behind the commercial plaza described above, is Riverside High School, which is undergoing a significant renovation during the writing of this report. The renovation, which is in the $30-$40 million range will create a state of the art facility and will feature a school for entrepreneurship. The project was featured in a 2008 Architectural Record Article titled Schools of the 21st Century available online at http://archrecord.construction.com/schools/0701_CH2_buffalo.asp. The article states that, "School construction projects provide an opportunity for the community to assist in moving both the school district and the community forward. Each brick laid represents a building block for both the school and region's future." The community of Black Rock/Riverside is anticipating a renewed interest in the area and an influx of population as a result of the high school project.




NIAGARA RIVER
CANAL


LAND USE LEGEND
COMMUNITY SERVICES
INDUSTRIAL
APARTMENTS
RESIDENTIAL
VACANT
COMMERCIAL
RECREATION


RIVERSIDE HIGH SCHOOL
ONTARIO STREET
COMMERCIAL PLAZA
ARTHUR STREET
GARFIELD STREET
NIAGARA STREET - NYS 266
VACANT
VACANT
VACANT
AUTO REPAIR
GAS STATION
VACANT
MCDONALDS
I-190 - NYS THRUWAY
MARINE VISTA APARTMENTS
HARRY'S HARBOUR PLACE
RESTROOM/ CONCESSION
BOAT LAUNCH
CORNELIUS CREEK PARK
PROPERTY BOUNDARY
STUDY AREA
NIAGARA RIVER

Circulation and Access

Vehicle Access

While the Black Rock Canal Park site is highly visible to travelers on I-190, it can be difficult to locate from Niagara Street because its entrance road is not obvious. The entrance road is off Niagara Street between a Kwik Fill gas station and an auto repair lot and is further bracketed by on/off ramps for I-190. A visitor to the parking using I-190 southbound would exit at the Ontario Street ramp onto Niagara Street and turn left into the park; this provides direct, easy access to the park. Visitors traveling northbound on I-190 would exit at Austin Street onto Niagara Street and continue about one half mile north to the park.

The understated and poorly marked park entrance road leads west from a three-way intersection on Niagara Street.

Boat Access

In this area, the Niagara River is an ideal location for a boat launch or docks due to the slower currents. A large eddy is present offshore causing waters in front of the Ontario Street Boat Launch to curl around to the south, flowing "upriver". This slower water allow boats to pull into the launch area safely without having to gauge water speeds. One minor difficulty for boaters in this area is that the current, combined with prevailing winds, will push floating debris toward the boat launch. This situation is likely to continue to be a minor problem.

Currently, the site includes a concrete boat launch and a paved area for trailer parking. A few short term dockage spots are available for boaters to tie up their boats while they park their trailers. There is no charge for users to launch here The nearest public launch to the north is at Aqua Lane Park approximately two miles away or to the south at the Erie Basin Marina, about seven miles away.

Traveling west along the entrance road takes the park user under a series of I-190 overpasses. The entrance road bends to the right towards the parking area, while the view continues down Cornelius Creek.

Bicycle Access

The Black Rock Canal Park property is fortunate to be located along a major bicycle trail; the Riverwalk, which extends from the waterfront in downtown Buffalo to Gratwick Park in the City of North Tonawanda. In the City of Tonawanda there is a link that connects to the Tonawanda Creek Canalway Trail, which extends for ten miles to the east to New Road, near Transit Road in the Town of Amherst. A branch of connecting bike trail also crosses the south and north Grand Island Bridges, connecting via a signed bike route to the City of Niagara Falls. Just over a mile south of Black Rock Canal Park, the Scajaquada Creek Trail connects the Delaware Park area with the Riverwalk trail. There are plans to fill in some missing sections of these trails to complete an even greater network of bike trails and routes that will connect with Black Rock Canal Park and provide an alternative to vehicle travel for Erie and Niagara County residents.

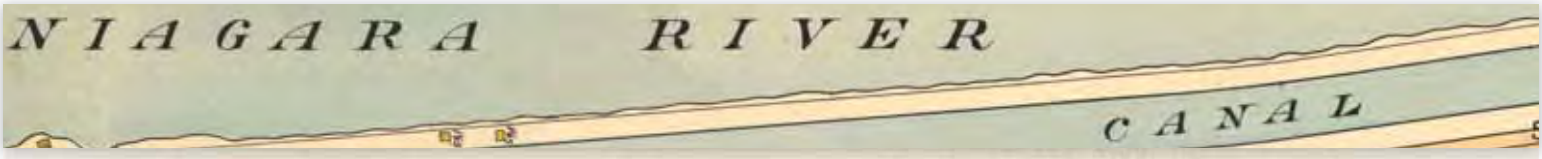
from the Greater Buffalo Niagara Regional Transportation Council 2009 Bicycle Route Guide

Views

One of the most compelling characteristics of the Black Rock Canal Park site is the view over the Niagara River and its importance cannot be over-estimated. Always changing, the open views across the water connect park visitors and Thruway users to the Niagara River, Lake Erie and the weather of the day; the river can be calm and smooth, choppy from winds, shrouded in fog on a cool morning, or cluttered with ice chunks. Buffalo-area commuters have been known to alter their route and drive the southbound I-190 in order to experience the view of the Niagara over the Black Rock Canal Park site.

There are other views, both good and bad, that should be considered when planning Black Rock Canal Park. Specific views are shown on the View Analysis map and are discussed below:

1. East from the Park – This view shows the neighborhood that is typical of the Black Rock and Riverside neighborhoods beyond I-190.
2. View of Cornelius Creek from the Pedestrian Bridge
3. View South in the Park – This view is typical of the view, both south and north, from the Riverside Access Road. It shows the expanse of asphalt versus the narrow strip of green to the right.
4. View of the Entrance – This is the view from the sidewalk on the opposite side of Niagara Street looking west to the narrow entry road.
5. View of Entrance – This is a view from the entrance road taken just east of the I-190 overpass. This is a view that all park visitor will experience. The entrance road turns to the right while the view continues down Cornelius Creek.
6. View West at Boat Launch Parking – This view from the parking area near the boat launch is often experienced by fisherman that frequent this park. Cars are often parked at the site with people inside just enjoying the view at lunchtime or watching the sunset.
7. View to the Park from the Niagara River – This view is looking east toward the boat launch and parking area from a boat on the Niagara River.


NIAGARA RIVER
CANAL


1


VIEW OF CREEK FROM PED. BRIDGE
2


VIEW OF ENTRANCE
4


VIEW OF ENTRANCE
5


6


VIEW TO PARK FROM NIAGARA RIVER
7


4
5
6
2
7
MCDONALDS
I-190 - NYS THRUWAY
GAS STATION
HARRY'S HARBOUR PLACE
RESTROOM/ CONCESSION
BOAT LAUNCH
CORNELIUS CREEK PARK
PROPERTY BOUNDARY
STUDY AREA
180 DEGREE VIEWS OF RIVER
NIAGARA RIVER

The Site

This aerial photo illustrates how ice, or other floating debris, that travels down the Niagara River is blown by the prevailing wind against the eastern shore of the river.

Wind

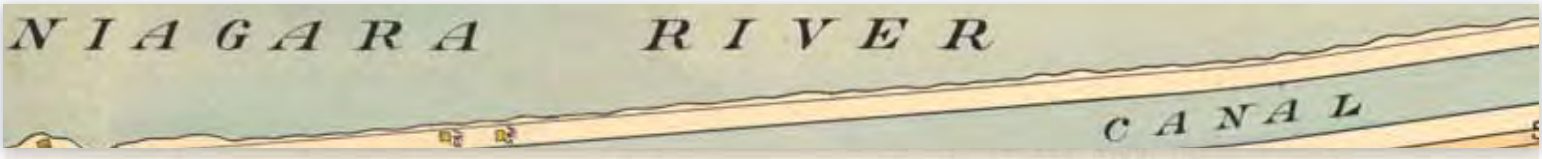
The prevailing wind direction is from the southwest. This is readily apparent to the casual observer who need only look at the condition of the existing trees that lean in a northeasterly direction. The prevailing wind direction combines with the direction of water flow (described below) pushing floating debris toward the boat launch. Wind can be extremely strong in this area due to the expanse of open water down-wind.

Another effect of the strong winds are the sieches. A sieche has been defined as rises and drops in Great Lakes coastal water levels caused by prolonged strong winds that push water toward one side of the lake, causing the water level to rise on the downwind side of the lake and to drop on the upwind side. When the wind stops, the water sloshes back and forth, with the nearshore water level rising and falling in decreasingly small amounts on both sides of the lake until it reaches equilibrium. A sieche will cause water levels at the Park site to reach their highest levels during periods of prolonged high velocity southwesterly winds.

Water Conditions

Water Flow

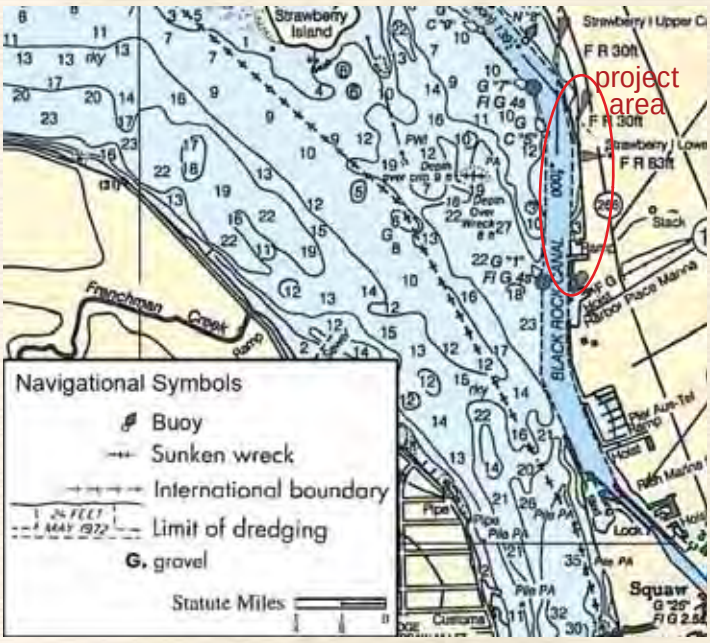
The Niagara River forms a large eddy offshore from the Ontario Street Boat Ramp that swirls around causing the water along the bulkheads to flow in the upstream direction. A similar eddy that formed behind the natural black rock formation and created a natural, calm harbor was the reason for the location of the original Village of Black Rock. This eddy also has a less desirable effect of collecting floating debris such as seaweed, trash and, in the winter, ice. The debris has been a problem at the boat launch necessitating frequent cleaning or, when it is at its worst, restricting the ability to launch boats.



Water Depth

The water close to the bulkheads is generally shallow, particularly north (downstream) of the boat launch where the bottom is easily visible when the water runs clear. However, there is a ship channel not far offshore that has a depth of approximately twenty feet and, according to nautical charts, is between 200 and 350 feet in width. Local, long-time diver and Black Rock Canal Park Advisory Committee member, Robert Niemiec, has been diving in the Ontario Street boat launch area for over fifteen years and has the following observations regarding the water and underwater conditions:

- Very little underwater debris is present
- The majority of debris is Styrofoam worm containers
- Underwater plant life has been returning steadily over the last 10 years
- The fish population is increasing – large bass are present
- The crayfish population is also increasing
- The water is generally much clearer than in years past



Water depths and nautical points of interest
chart adapted from Richardsons' Chartbook + Cruising Guide, Lake Erie Including Lake St. Clair and Niagara River, 5th Edition

Water Quality

Generally, the water in the Niagara River at the Ontario Street Boat Launch runs clean and clear, presenting an attractive scene. The exception to this is when either a strong wind mixes the water with sediments, increasing the turbidity, or when a rainstorm dumps sediments and sewage overflow into Cornelius Creek, Scajaquada Creek or the Buffalo River, discoloring the water.

Submerged aquatic plants in the Niagara River
Underwater photo taken offshore from boat launch parking, courtesy Robert Niemiec, Black Rock Canal Park Steering Committee

Cornelius Creek, however, has serious water quality problems. As explained previously, a major CSO can spill untreated sewage into the creek when stormwater overwhelms the capacity of the sanitary sewer system. When the CSO spills into the creek, a strong sewer odor is emitted and the water becomes cloudy. Additionally, an oily residue can also been seen on the creek surface during periods of poor water quality. A floating boom was placed across the creek by the BSA to contain oil and floatable materials before they enter the river. Gary Hall of Harry's Harbour Place, adjacent to the park, has reported that oils and scum have floated from the creek into their marina, causing the need to clean the boats moored there. The DEC is prepared to clean-up floating material with vacuums or oil-absorbent booms when notified of a problem and, for this, they will need continued access to the creek. However, DEC is not able to clean up contaminants that are in solution, such as untreated sewage. John Otto with the DEC reports that, in 2009, there were no clean-ups necessary due to the lack of major storm events.

According to numerous sources, the solution to the

water quality problem at Cornelius Creek is not likely to be solved in the near future. John Otto reported that an estimated 25% of the runoff from the City of Buffalo flows into Cornelius Creek. Jim Egan with the BSA reported that DEC and EPA have mandated the City to fix their CSO problem city-wide, which will cost hundreds of millions. BSA is currently in negotiations with DEC and EPA to create a workable/ affordable plan to fix the CSO problem. With the City's aging infrastructure of interconnected storm and sanitary sewers, any improvement will likely be very slow and gradual.

Flood Levels

The upper Niagara River is prone to sudden flooding due to wind-driven seiches and to ice jams during the winter and early spring. Due to the river's role in hydropower production, the New York Power Authority is assigned the lead responsibility for flood-risk management. Therefore, the Federal Emergency Management Agency (FEMA), which typically establishes 100-year flood elevations throughout the US, does not maintain flood elevation data for the Niagara River. If critical services (such as law enforcement agencies) are to be located in the park building, it will be necessary to ensure that the building and park ingress/egress are not inundated in a flood event.

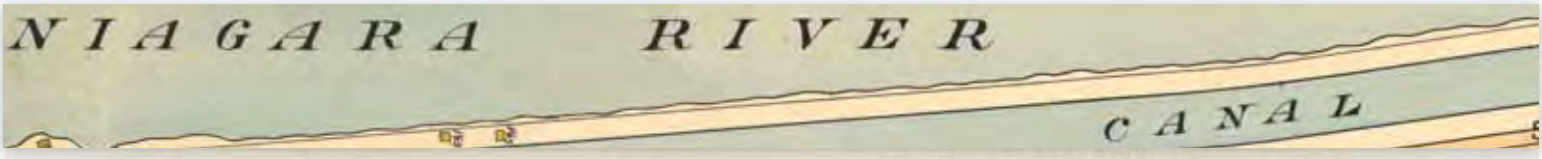
One of the tasks undertaken during the Feasibility Analysis was to determine the maximum historical flood level at the site. Historical water level data was collected from several of the water level gauges along the river nearest the park. The water level gauges include one upstream gauge at the Black Rock Canal lock, one gauge directly across the river at Frenchman's Creek, and one downstream gauge at the Niagara Intake. An analysis of the recorded data from these gauges, as well as conversations with local regulatory agencies familiar with flooding events on the river, revealed several dates of highest recorded water levels. These dates are: November 10, 1975; December 2, 1985; November 4, 2001; January 30, 2008; and October 7, 2009. The water levels at these gauges were compared to the water level at the park on two known occasions, to calculate the typical water level difference between these gauges and the park. Using the calculated water level difference between the gauges and the park, it was possible to estimate the water level at the park on the established dates of highest water levels. The resultant estimate of the flood elevation at the park is approximately 571 feet above sea level. (See Appendix 6 for water level data and estimates.) At this level, the river would reach the top of the boat launch ramp and inundate a small area of asphalt between the ramp and the river, but the remainder of the site would not be flooded.

Typical water level at the boat launch, above. High water level during a flood event, below.

Soils

Subsurface soil conditions at Black Rock Canal Park are not well known since nearly the entire area has been filled during the construction of I-190. Soil borings have not been done as part of this project but may be necessary, along with a geotechnical analysis, if structures are to be built on the site. Ideally, the planning and location of any structures should be completed so that boring can be located at the exact site of the proposed structure. A cursory examination of the road and parking areas shows no sign of settling or unstable soils and it is likely that the subgrade will be suitable for the construction of structures.

The presence of topsoil suitable to grow plants is limited at the site. Areas that are planned for greenspace should have topsoil imported in order to greatly improve the chances of success for the plantings. Another factor that must be considered is that road salt from I-190 blows onto the site and percolates into the soil (as well as blowing directly onto plants). Good subsurface drainage in planted areas may help leach salt from the soils to prevent its accumulation.



Utilities

All of the needed utilities are available at the project site but will need to be evaluated by an engineer before being re-used. The locations of utilities are based on a topographic survey of existing surface features conducted by Fisher Associates in the fall of 2009, combined with record plans for a series of improvements to Cornelius Creek Park, Riverwalk and the Ontario Street Boat Launch Site, prepared by Tallamy, Van Kuren, Gertis and Associates in 1990.

- Sanitary Sewer – There is a four inch diameter, ductile iron, sanitary sewer force main that serves the restroom/concession building at the site. The line originates at the force main pump inside the restroom/concession building, heads south for approximately 140 feet, turns 45 degrees and proceeds southeast for approximately 180 feet before turning 45 degrees and proceeding approximately 80 feet east under the park entrance road before ending at a manhole just east of the I-190 bridge.
- Water – There is a two-inch, copper, domestic water line to the restroom/concession building. The line runs from the building, paralleling the entire length of the sanitary line with a separation of 10 to 15 feet. The water line runs beyond the end point of the sanitary line, continuing eastward under the southern edge of the park entrance road before tying into an eight inch water main along the west edge of Niagara Street.
- Electric – Electricity is supplied to the building and overhead lights from a 200 amp service riser southeast of the restroom concession building on the east side of the park road. A conduit runs from the service riser to a distribution panel in a planter in the parking lot, directly south of the building. From the panel there are a variety of conduits that feed various portions of Cornelius Creek Park and the boat launch area. Since the installation of the panel in 1990, there have been some modifications to the electrical system; in particular, an overhead line has been run to some of the lights in the parking lot.

Zoning

According to the Zoning Ordinance for the City of Buffalo, the Cornelius Creek Park site is classified as M1 Light Industrial; the Ontario Street Boat Launch and Riverside Access Road do not have an assigned zoning classification, but are bordered by the M1 Light Industrial and R3 Dwelling Districts. The park site is also within the Niagara River Coastal Special Review District, which ensures that a proposed development, if it does not already have an approved development plan, is reviewed by the City Planning Board.

Site Opportunities and Constraints – A Summary

There are numerous features that make this site a worthy candidate for a significant upgrade. It is highly visible from the Niagara Section of the New York State Thruway (I-190) with its 69,000 vehicles per day. For visitors from the north, this site is the first piece of public waterfront they view, making it a gateway into the City of Buffalo and a statement on the quality of the community, or lack thereof. The presence of the Riverwalk trail provides a convenient form of access to the site for pedestrians and bicyclists. The site has a rich history with the former presence of the Erie Canal, the shipwreck offshore and with the pilings from the canal-era fishing shanties still present offshore. And one of the most important attributes of the site is, of course, the waterfront which offers scenic, ever-changing views of the Niagara River and a launch for boaters in relatively calm waters.

There are, however, a number of challenges that should be addressed when planning upgrades to the site. There is an expanse of featureless asphalt paving and a lack of greenspace. Park visitors sometimes report being concerned about security due to the isolation of Cornelius Creek Park, the boarded up restroom/concession building, the vandalized railing and the trash scattered about. Cornelius Creek, located in the widest portion of the site has serious water quality problems, since it the largest combined sewer overflow (CSO) in the City of Buffalo. In spite of these challenges, the site is currently used extensively by anglers and those who come to enjoy the view.

6.0 Implementation

Implementation Requirements

The following is an analysis of federal, state and local requirements for the implementation of the Black Rock Canal Park Master Plan.

Federal Requirements

The Corps of Engineers has jurisdiction over all waters of the United States and permits are required for all projects which involve work in the waters of the United States. There are two types of federal permits that may be required:

Section 10 of the Rivers and Harbors Act approved March 3, 1899, prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States, the excavating from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The instrument of authorization is designated a permit.

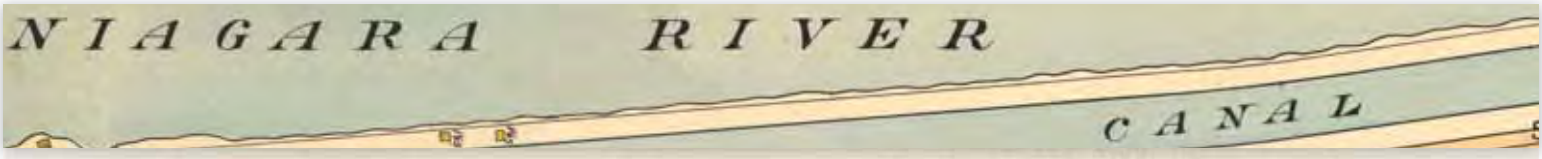
Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearing, for the discharge of dredged or fill material into the waters of the United States at specified disposal sites. The selection and use of disposal sites will be in accordance with guidelines developed by the Administrator of EPA in conjunction with the Secretary of the Army and published in 40 CFR part 230. If these guidelines prohibit the selection or use of a disposal site, the Chief of Engineers shall consider the economic impact on navigation and anchorage of such a prohibition in reaching his decision. Furthermore, the Administrator can deny, prohibit, restrict or withdraw the use of any defined area as a disposal site whenever he determines, after notice and opportunity for public hearing and after consultation with the Secretary of the Army, that the discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas.

New York State Requirements

Protection of Waters Permit – This permit is required for disturbing the bed or banks of a "protected stream" (disturbance may be either temporary or permanent in nature); a protected stream is one with a classification and standard of C(T) or higher. The Niagara River in the project vicinity is classified as AS, which is a higher classification than C(T)and indicates a best usage for a source of drinking water, swimming and other recreation, and fishing. This permit is also required for the excavation or placing of fill in navigable waters of the state, below the mean high water level, including adjacent and contiguous marshes and wetlands, with a water classification and standard of C or D.

This permit is a joint permit application that is filed with the New York State Department of Environmental Conservation, the US Army Corps of Engineers (USACE) and several other state agencies; the Office of General Services (OGS), and the Department of State (DOS). The permit application must include detailed plans of the work proposed for the streambed and banks. This means that the design of the project must be resolved before the application can be filed. Though the requirements for the permit are not onerous, the review time can be lengthy making it important to file as early as possible once the design is resolved.

State Environmental Quality Review (SEQR) – The basic purpose of SEQR is to incorporate the consideration of environmental factors into the existing planning, review and decision-making processes of state, regional and local government agencies at the earliest possible time. To accomplish this goal, SEQR requires that all agencies determine whether the actions they directly undertake, fund or approve may have a significant impact on the environment, and, if it is determined that the action may have a significant adverse impact, prepare or request an environmental impact statement. Since there is no master plan for the ultimate buildout of the park, SEQR must be conducted in pieces. This approach must be done with care since it can be viewed as "segmentation" which is dividing a project into smaller pieces in order to make the impact seem smaller. Conducting SEQR on the initial improvements proposed should not be viewed as segmentation since the ultimate buildout is not known and since the initial improvements are a "stand alone" project - that is, these improvements do not depend on subsequent actions to complete the project.



State Pollutant Discharge Elimination System (SPDES) – New York State law requires a permit for constructing or using an outlet or discharge pipe (referred to as a "point source") that discharges wastewater into the surface waters or ground waters of the state. The term wastewater in this context includes stormwater. If the stormwater system at Black Rock Canal Park has a new outfall directly into the Niagara River or Cornelius Creek, then a SPDES permit will be required. The DEC has a website describing this permit and the requirements at http://www.dec.ny.gov/permits/6054.html.

Stormwater Permit for Construction Activities - This DEC-administered permit will be required for construction work at Black Rock Canal Park since it applies to construction activities that disturb one or more acres of land. The permit regulates stormwater quantity and quality both during and after construction. The permit requires best management practices, which are designed to ensure that the site's post-construction runoff quantity is equal to, or less than, the pre-construction runoff rates - If new impervious surface is added to the site, the increased runoff must be mitigated on-site using measures such as on-site stormwater retention. In addition, the permit requires a stormwater pollution prevention plan (SWPPP) to reduce sediment runoff and improve the quality of stormwater. Since the City of Buffalo is a regulated MS4 (Municipal Separate Storm Sewer System), the City must review the SWPPP and issue a MS4 SWPPP Acceptance Form which gets forwarded to the DEC along with a Notice of Intent. Measures to control stormwater pollution during construction include silt fences (or similar) at the down-slope edges of the construction area and around catch basins, etc. Post-construction stormwater quality improvement measures may include directing runoff through plant-lined swales or through sand or gravel areas to provide filtration, or installing specially designed catch basins that trap both sediment and floatable contaminants.

New York State Department of State (DOS) Federal Consistency Assessment - Since the project site lies within a designated coastal zone, any federal action, such as the review of the Protection of Waters Permit (described above), would require a Federal Consistency Assessment. NYSDEC would forward the permit application to the DOS for a review to make sure that the proposed action is consistent with coastal policies.

Local Requirements

Road Cut Permit – This permit will be required by the City of Buffalo Department of Public Works for disturbance to the park entrance road off Niagara Street. In the case of the Black Rock Canal Park project, there may need to be a gas line installed that would necessitate the road cut. This permit would be obtained just prior to construction by the project contractor.

Plumbing Permit – A permit may be needed to use the water and wastewater lines since the volume of flow may be different than the existing design rate. This permit would be obtained from the Erie County Water Authority by the project contractor.

Funding

Initial Improvements Funding

Monies from a variety of sources has been grouped into a fund for initial improvements to Black Rock Canal Park. Those funds are:

Senator Antoine Thompson	$500,000
NYS Canal Corporation	$100,000
Erie County	$ 50,000
Total	$650,000

The money being provided by Senator Thompson's office has been routed through the New York State Department of State who, in turn, has a contract with the Northwest Buffalo Community Center who will provide Erie County with the funds. Those funds are available immediately pending the passage of a State budget which, at the writing of this report, has not been passed.

The NYS Canal Corporation funds are available immediately but are scheduled to expire in June of 2011.

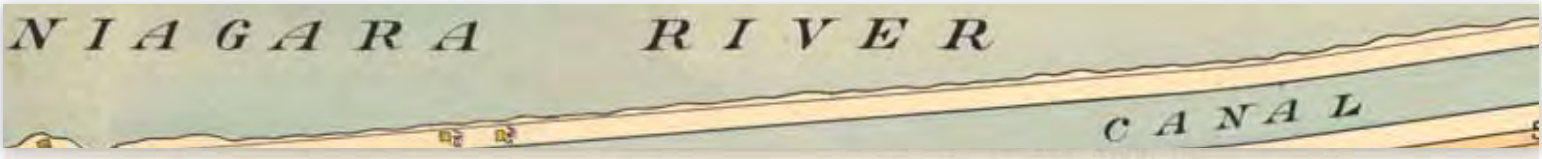
The Erie County funds are available immediately.

Niagara Greenway Funding

The Niagara River Greenway Commission determines if a project is consistent with the Niagara River Greenway Plan. If an action is determined to be consistent, fun ding is distributed by the various Greenway Standing Committees (in the case of Black Rock Canal Park, the Erie County Standing Committee). Black Rock Canal Park should be a strong candidate for funding from this source. Once approved for funding, the actual funds are available the following year - in this case if Black Rock were approved for funding in 2010, funds wouldn't be available until 2011 making this funding source a strong possibility for phase 2.

Other Potential Funding Sources

Other source of money that is commonly used for waterfront parks is Environmental Protection Funds (EPF) that, in New York State, is administered by the NYS Department of State. The project is located within a designated coastal zone making it a prime candidate for these funds.



Appendices

Appendix 1

Consistency with Regional Plans

The Feasibility Analysis includes a review of relevant local and regional planning documents to ensure that the design of Black Rock Canal Park is consistent with the goals and recommendations of these plans. The following plans have been reviewed for consistency, which is summarized on the following pages:

City of Buffalo Comprehensive Plan (2006)

Documents incorporated into the Comprehensive Plan by reference:

Queen City in the 21st Century: Buffalo LWRP (2007)

Queen City Waterfront: Buffalo Waterfront Corridor Initiative (2007)

The Olmsted City – The Buffalo Olmsted Park System: Plan for the 21st Century (2008)

Good Neighbors' Planning Alliance Neighborhood Plans, Black Rock – Riverside Good Neighbors' Planning Alliance

Building a Neighborhood of Choice: A Neighborhood Plan for the Riverside Planning Community (2007)

Historic Black Rock: War of 1812 Bicentennial Community Plan (2008)

Erie County Parks System Master Plan (2002)

Niagara River Greenway Plan and FEIS (2007)

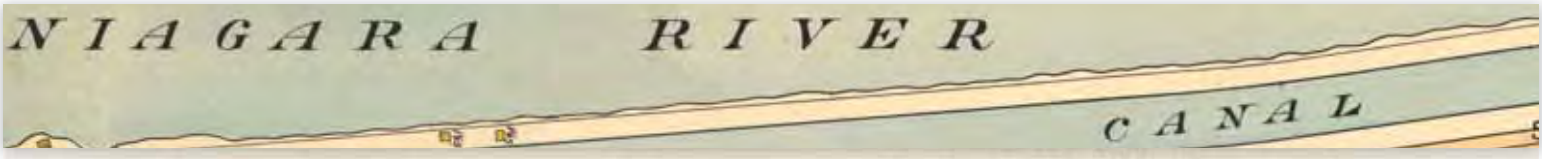
Erie Canalway National Heritage Corridor Preservation and Management Plan (2006)

City of Buffalo Comprehensive Plan (2006)

The Buffalo Comprehensive Plan (2006) is a physical land use plan for the City of Buffalo. The Plan outlines four key principles and seven policies for guiding the City's development priorities and investments.

The Comprehensive Plan is driven by four key principles that help to identify future development priorities. The principles are: Sustainability; Smart Growth; and Fix the Basics, Build on Assets. The improvements to Black Rock Canal Park reinforce these principles. Elements of the park design contribute to the *sustainability* of the City through restoration the site's physical environment, reduction of stormwater runoff, promotion of energy conservation through green building design, development of waterfront resources, strengthening the Black Rock – Riverside neighborhood, and improvements to water quality. The Comprehensive Plan calls for the City to adopt ten basic principles of *Smart Growth*. The community-driven plan for Black Rock Canal Park contributes directly to the fifth Smart Growth principle: foster distinctive, attractive communities with a strong sense of place. The final two key principles of the Comprehensive Plan call on the City to fix the *basics and build on assets*. The Plan identifies the Cities assets as our Olmsted parks and parkways, our Joseph Ellicott city plan, our great waterfront, prodigious infrastructure, great public institutions of education, health care, art and culture, affordable housing and strong neighborhoods, and most of all the civic capital of active citizens and friendly neighbors. The plan for the Black Rock Canal Park builds upon the city's assets by providing improved connection between the Olmsted Parks, providing improved access to and amenities along the waterfront, strengthening the physical and social fabric of the neighborhood, and capitalizing on the energy, interest and input of the neighborhood's residents in the development of the park.

Seven policies were derived to meet the key principles of the Comprehensive Plan. The policies state that Buffalo must: (1) deliver quality public services, (2) maintain public infrastructure as fundamental to economic growth, environmental protection, and community development, (3) transform Buffalo's economy as a basis for revitalization, (4) reconstruct the schools, (5) rebuild neighborhoods, (6) restore Olmsted, Ellicott and the waterfront, (7) and protect and restore the urban fabric. The Black Rock Canal Park reinforces these policies. The park is part of the city's municipal infrastructure; the proposed improvements provide opportunities to protect the environment and foster community development and economic growth. The park will improve the quality of living in Black Rock – Riverside, an important step in rebuilding Buffalo's neighborhoods. The park is also a key component in the city's connected system of parks and parkways, linking both to a greener and more accessible waterfront. Additionally, the proposed interpretative components of the park help to protect and restore the urban fabric by educating park visitors



about the site's heritage and historical significance.

The Land Use Concept within the Comprehensive Plan identifies three Strategic Investment Corridors. Black Rock Canal Parks lies within the Waterfront/Tonawanda Corridor. The Plan emphasizes that a green setting and restored river and buffer zone, which the improvements to Black Rock Canal Park provide, will be beneficial to the new and existing enterprises that are targeted for these Corridors.

The Comprehensive Plan also emphasizes the importance of the Ellicott street plan and Olmsted park system. The location of Black Rock Canal Park along Niagara Street (one of Ellicott's radial streets), the Niagara River, and the Riverwalk (a pedestrian and bicycle path that connects the Olmsted parks and other parks along the Buffalo-Niagara waterfront) makes the park an important component of the physical structure and character of the city. The Plan states that repairs and improvements to this structure can help leverage other investments important to reversing Buffalo's decline. Specifically, the Plan calls for the redevelopment, from end to end, of each of the radial streets that emanate from Ellicott's original radial and grid plan, including Niagara Street. According to the Plan, appropriate improvements include paving, landscaping, trees, traffic calming, and redevelopment of properties along the radials. The plan for Black Rock Canal Park proposes such improvements to Niagara Street at the park's entrance.

The Comprehensive Plan incorporates by reference several other planning documents that are supported by the proposed improvements at Black Rock Canal Park. These include the City of Buffalo Local Waterfront Revitalization Plan (LWRP), the Buffalo Waterfront Corridor Initiative, the master plan for the Buffalo Olmsted Park System, and the community/neighborhood plans of the Good Neighbors Planning Alliance.

Queen City in the 21st Century: Local Waterfront Revitalization Program (LWRP) (2007)

The City of Buffalo's LWRP is a strategy to coordinate local, state and federal actions to achieve Buffalo's goals for its waterfront. The vision for the city is to reestablish the waterfront as a thriving and vital part of the community and a destination for tourism and economic activity. While the past focused on the waterfront as a center for industrial and maritime operations, the future use of this area is envisioned to include a mix of uses, with parks, recreation and tourism attractions blending with businesses, marine commercial uses and light manufacturing activities.[1]

The LWRP includes thirteen broad policies that stipulate local action to protect environmental, historic, and visual characteristics of the waterfront, promote appropriate economic uses, and expand public waterfront access. Many of these policies are directly applicable to Black Rock Canal Park. The following is a list of the LWRP policies.

<u>Developed Waterfront Policies</u>

- Foster a pattern of development in the waterfront area that enhances community character, preserves open space, makes efficient use of infrastructure, makes beneficial use of a waterfront location, and minimizes adverse effects of development (protecting the quality of life in Riverside and Black Rock is specifically mentioned in the details of this policy)
- Preserve historic resources in the waterfront area
- Enhance visual quality and protect outstanding scenic resources

<u>Natural Waterfront Policies</u>

- Minimize loss of life, structures and natural resources from flooding and erosion
- Protect and improve water resources
- Protect and restore ecological resources, including significant fish and wildlife habitats, wetlands and rare ecological communities
- Protect and improve air quality in the waterfront area

1 City of Buffalo Local Waterfront Revitalization Program. IV-2 p.

- Minimize environmental degradation from solid waste and hazardous substances and wastes

Public Waterfront Policies

- Provide for public access to, and recreational use of, coastal waters, public lands and public resources in the waterfront area

Working Waterfront Policies

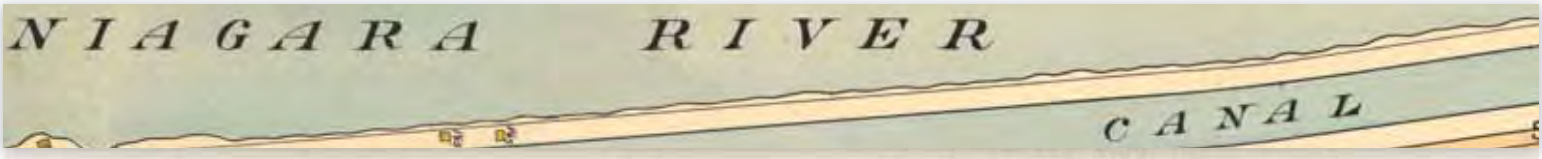
- Protect existing water-dependent uses, promote the siting of new water-dependent uses in suitable locations, and support efficient harbor operations
- Promote the sustainable use of living marine resources
- Protect existing agricultural lands
- Promote appropriate use and development of energy and mineral resources (including energy efficient design, green building principles and recycling)

General recommendations in the LWRP that apply to the city's entire waterfront include the provision of additional: water-dependent and water-enhanced facilities and amenities for public use, vehicular access and parking, boating access to local waterways, access for recreational fishing, access to public transportation opportunities, wayfinding to inform the public about waterfront attractions, wetland protection and habitat restoration, safety and accessibility, and convenient access on a year-round basis. The LWRP also acknowledges that water quality is another area of importance for maintaining a high quality waterfront area. Quality considerations include the management of both point and non-point source pollution. Water quality protection and improvement must be accomplished through a combination of managing new, and mitigating and/or remediating existing, sources of pollution. In certain areas with existing water quality impairments, aggressive remediation measures are needed.

The LWRP includes several recommended actions and projects specific to the area that includes Black Rock Canal Park. The LWRP recommends that interpretative signage is installed to recognize the historic Village of Black Rock, its efforts to be the western terminus of the Erie Canal (the Village of Black Rock lost this advantage to the Village of Buffalo), and the existing federal lock on the Black Rock Canal. The LWRP also acknowledges that the I-190 cuts this area off from the river and severely limits access; it recommends that efforts should be made to identify locations where access improvements and linkages can be created or improved. The LWRP also recommends additional signage to inform and direct people to the existing waterfront parklands. Of the recommended projects listed in the LWRP, two are relevant to the Black Rock Canal Park. These are (1) the implementation of the Buffalo Sewer Authority's Combined Sewer Outfall Long Term Abatement Plan, which identifies options for eliminating the 63 combined sewer outfalls in the City, and (2) further improvements at Ontario Street Boat Launch, including better landscaping, reinforcement of the park's entrance from the Seaway Trail, and more sensitive paving at the boat launch.

Queen City Waterfront: Buffalo Waterfront Corridor Initiative (2007)

The Waterfront Corridor Initiative (WCI) is a complimentary implementation guide for the policies and projects identified in the LWRP. The WCI provides additional detail on several long term projects in the Black Rock – Riverside neighborhood. These include: further development at Harbour Place (high-density residential, mixed-use and maritime uses); revitalization of Niagara Street north of Forest Ave.; development and support of the Seaway Trail (Niagara Street); mixed-use, public access and interpretative development at the Black Rock Canal locks; and further study into the relocation of the I-190 in Riverside.



The Olmsted City – The Buffalo Olmsted Park System: Plan for the 21st Century (2008)

The Buffalo Olmsted Park System includes six major parks, multiple parkways, circles, and small spaces. It is a tremendous resource for the people of the Buffalo-Niagara Region. The entire system, conceived of by America's most famous landscape architect, Frederick Law Olmsted, Sr., is recognized as a cultural landscape, specifically a historic designed landscape, on the National Register of Historic Places. It is also the backbone of Buffalo's park and open space system, representing nearly sixty percent of all the parkland in the city.[2] The System Plan for the Olmsted Parks includes an overview of the history and significance of the park system, recommendation for each park and the rest of the system, and an implementation plan.

In its modern day context, the Olmsted system exists within the boundaries of the Niagara River Greenway, a system of green spaces and pathways that line the Niagara River. One of the seven guiding principles for restoration and management of the Olmsted Park System calls for expansion of the system to connect to parks throughout the city and to connect to the Niagara River Greenway and other trail systems. One of the 12 projects recommended for Riverside Park is the extension of park connections to the Niagara River Greenway and Washington and Towpath Parks. The location of Black Rock Canal Park along the Niagara River Greenway between Washington and Towpath parks implies that Black Rock Canal Park would be part of this recommended project.

2 The Olmsted City – The Buffalo Olmsted Park System: Plan for the 21st Century. 5 p.

Black Rock – Riverside Good Neighbors' Planning Alliance

The Black Rock – Riverside Good Neighbors' Planning Alliance has prepared two neighborhood plans relevant to Black Rock Canal Park. These are Building a Neighborhood of Choice: A Neighborhood Plan for the Riverside Planning Community (2007) and Historic Black Rock: War of 1812 Bicentennial Community Plan (2008). These plans highlight the history of Black Rock and Riverside communities and identify goals/recommendations to preserve and strengthen the communities.

The Neighborhood Plan for the Riverside Community includes information on the history of the Black Rock and Riverside neighborhoods and an inventory of existing conditions. It also identifies community goals and provides an action plan for their implementation. Several of the goals relate directly to Black Rock Canal Park. These goals, along with the identified implementation strategies, are listed below:

Create and maintain clean, safe waterfront parks, with a special focus on Towpath Park, Cornelius Creek Park, the Ontario Boat Launch/Black Rock Canal Park (proposed), and access to same

Implementation strategies:

- The hiring of a full-time county employee to control boat launch usage
- Installing a playground and park benches
- Improving and increase lighting
- Adding jet ski docks
- Installing temporary speed bumps
- Improving signage for the park (on Niagara Street) and for rules of the park
- Painting the breakwall and rails more attractive colors (change from current yellow to green or other color which blends with the surroundings)
- Encouraging increased police presence/surveillance at the parks

Improve image, cleanliness of main business streets (including Niagara and Ontario Streets)

Implementation strategies:

- Install planters and trash cans
- Plow sidewalks

The Historic Black Rock Community Plan includes information on the history of and recent accomplishments in the Black Rock neighborhood. The plan also outlines recommendations and an implementation strategy. Recommendations of the plan that are reinforced by the recommended improvements at Black Rock Canal Park include:

Preserve and strengthen community identity

Implementation strategies:

- Develop interpretative program and materials for local and regional history
- Create a local history museum

Revitalize Niagara Street commercial area and develop and market the area's positive attributes

Implementation strategies:

- Promote maritime activities (boating, birding, fishing, etc.)
- Leverage direct bike path/multi-use trail connections to downtown, Tonawandas, and Scajaquada Pathway

Enhance community walkability while leveraging existing transportation advantages

Implementation strategies:

- Plan and implement streetscape improvements at key intersection, gateway, and commercial and cultural corridors in Historic Black Rock (e.g. Niagara and Ontario Streets)
- Plan and implement traffic calming measures, such as roundabouts, textures paving in crosswalks, etc.
- Add wayfinding signage to effectively inform travelers as to highway entrances, neighborhood gateways, park entrances, historic and cultural attractions, and other neighborhood amenities.

Realize the potential of existing recreational assets and seize opportunities for new ones within the neighborhood (parks, recreation, waterfront)

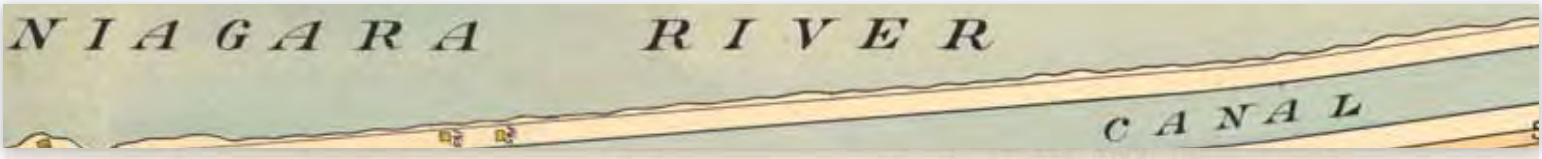
Implementation strategies:

- Support completion of planned improvements to Squaw Island Park, Tow Path Park, and the Ontario Street Boat Launch/Cornelius Creek Park.
- Support creation and maintenance of clean, safe parks, microparks, and greenway connections, and access to same.
- Add desirable community features into parks, microparks, scenic trails, etc., like lighting, seating furniture, wi-fi, game tables, skate spots, bubblers, water fountains, etc., without creating neighborhood nuisance behavior.
- Support new recreational trails/bike paths and greenway connections, and expansion and improvement of existing ones, like the Scajaquada Creek Bike Path, Seaway Trail, Riverwalk, to link parks/ recreational assets to themselves and to other neighborhoods.

Make Distinctive Gateways and Street Themes, Leverage Land Development, and Improve Urban Design

Implementation strategies:

- Add and customize, to the extent practicable, wayfinding signage, transit shelters, street furniture, bike racks, to leverage visual cues emanating from the neighborhood and its history.
- Expand park, garden and greenspace opportunities, taking advantage of emerging vacant lots.



Erie County Parks System Master Plan (2002)

The Erie County Parks System Master Plan is a framework for preservation and enhancement of the county parks over the next 15 to 20 years. It includes recommendations & management strategies for the parks, trails and waterfront. Recommendations & management strategies relevant to Black Rocks Canal Park include:

Niagara River Parks (Ontario St., Towpath, Isle View)

- Provide additional fishing accommodations with signage
- Strengthen connections with Riverwalk
- Provide better signage from Niagara Street

Waterfront Strategy

- Support the significant migratory bird corridor
- Ensure visibility and connectivity of waterfront parks
- Improve routing and landscaping of Riverwalk
- Add access points for fishing, canoe/kayak launches

Niagara River Greenway Plan and FEIS (2007)

The Niagara River Greenway Plan and FEIS establish a unified vision and principles for the Niagara River Greenway. The Greenway Plan sets priorities for near-term activities & discusses strategies for Greenway development. The stated vision of the Niagara River Greenway is:

> *The Niagara River Greenway is a world-class corridor of places, parks and landscapes that celebrates and interprets our unique natural, cultural, recreational, scenic and heritage resources and provides access to and connections between these important resources while giving rise to economic opportunities for the region.*

The Greenway Plan establishes 11 principles to guide greenway planning toward achieving the vision. These guiding principles include: Excellence (in projects), Sustainability, Accessibility, Ecological Integrity, Public Well-Being, Connectivity, Restoration, Authenticity (reflecting the culture/history of the location), Celebration (of history and culture), Partnerships, and Community Based (planning).

The vision for the Niagara River Greenway will become reality through hundreds of incremental steps and individual actions. Criteria for evaluating and forming projects and activities within the Greenway are established in the Greenway Plan. Projects approved for Greenway funding should help achieve the goals of the Greenway. Projects may be granted priority status if they meet the following priorities, based on the Plan's goals:

- Improved access to waterfront resources
- Development of an integrated trail and park system
- Restoration of the Niagara River ecosystem
- Interpretation and education about the region's cultural, natural and historic resources
- Revitalization of urban centers

Erie Canalway National Heritage Corridor Preservation and Management Plan (2006)

In December, 2000 the United States Congress established the Erie Canalway National Heritage Corridor. The legislation created the Erie Canalway National Heritage Corridor Commission and charged it with developing and implementing a Preservation and Management Plan for the Corridor. The Preservation and Management Plan outlines strategies for achieving six key goals:

- Protecting our heritage: the Corridor's historic and distinctive sense of place will be widely expressed and consistently protected.
- Conserving natural resources: the Corridor's natural resources will reflect the highest standards of environmental quality.
- Promoting recreation: the Corridor's recreation opportunities will achieve maximum scope and diversity, in harmony with the protection of heritage resources.
- Interpretation and orientation: the Corridor's current and future generations of residents and visitors will value and support preservation of its heritage.
- Economic revitalization: the Corridor's economic growth and heritage development will be balanced and self-sustaining.
- Tourism development: The Corridor will be a "must do" travel experience for regional, national, and international visitors.

The Preservation and Management Plan addresses the kinds of historic and cultural resources in the Corridor, describes the threats to their survival, and proposes guidelines for new and ongoing heritage development efforts by public and private actors. It mentions that Buffalo, bypassed by the Barge Canal's new terminus at Tonawanda and North Tonawanda; filled in its canals and sealed them beneath streets and the elevated I-190 and that plans are currently underway to unearth and interpret Buffalo's original connection between the Erie Canal and Lake Erie.

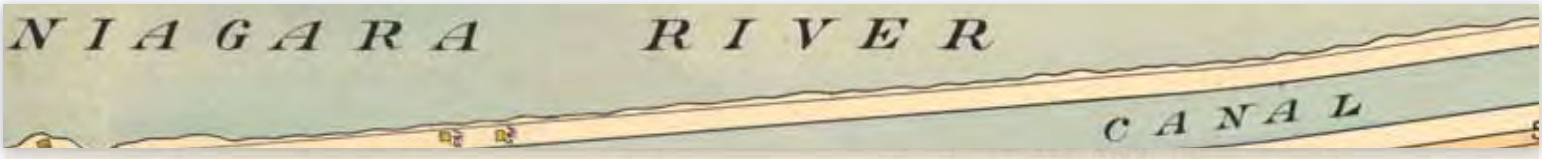
The Preservation and Management Plan envisions that the Corridor's natural resources will reflect the highest standards of environmental quality. Two objectives have been identified as milestones toward this goal:

- Increase public awareness and support for conservation and enhancement of critical natural resources through education and interpretation.
- Encourage quality stewardship practices such as open space conservation, enhancement of water and air quality, and integrated regional management of natural resources including waterfronts.

With respect to promoting recreation, the Corridor's outreach and educational efforts, technical assistance, and targeted investments seek to: increase recreational and tour boating opportunities, develop side trails off the end-to-end Canalway Trail, and encourage open space conservation and the creation of a continuous greenway along the canal system. The Corridor will also support new recreational development designed to:

- Accommodate diverse uses, maximizing the utility of investments by serving multiple users, such as a marina that offers restrooms and bicycle rentals near a trailhead;
- Capitalize on existing infrastructure, facilitating linkages between existing recreational destinations and focusing on the canals and related resources;
- Enhance accessibility to recreational facilities for people with disabilities;
- Improve access to scenic areas, creating routes or views to natural features (e.g., waterfalls, cliffs) and historic structures (aqueducts, locks) that showcase the region's heritage;
- Protect natural resources, factoring the vulnerability of habitat and ecosystem function into planning for new or enhanced facilities;
- Uphold cultural significance, avoiding or mitigating impacts to archeological sites and character-defining features of the landscape; and
- Manage visitor use, providing adequate support infrastructure and services, and safety and orientation devices, to address the concerns of private property owners and others affected by new facilities.

The goal of Erie Canalway National Heritage Corridor's interpretation effort is to add a Corridor "overlay"



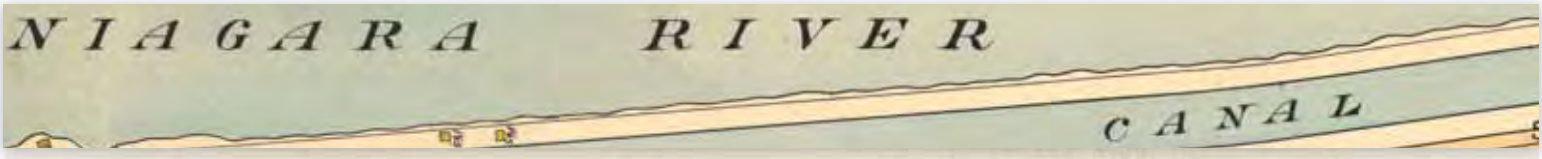
to existing or planned interpretive and wayfinding developments, acknowledging their partnership with and inclusion in the Corridor. The Corridor will also seek ways to integrate its proposed interpretive and wayfinding frameworks and graphic identity into planned local and regional developments. Using consistent communication devices throughout the Corridor will reinforce its sense of place and help people grasp interpretive themes while meeting the needs of different audiences (e.g. local users versus Corridor travelers). Interpretive materials should be designed to humanizing the interpretative experience with specifics about real people and real communities. Major subjects that are well supported by Corridor resources and by the context of Black Rock Canal Park include engineering and technological invention and innovation; economic and labor history; commerce and industry; immigration, Euro-American settlement and community development; and cultural history.

The Corridor's economic revitalization strategy focuses on heritage development, an economic revitalization approach that respects the intrinsic value of the Corridor's assets and uses this to strengthen the Erie Canalway brand, expand upstate New York's economy, and help it compete in the market for place-based investments. Actions that strengthen an area's ability to compete for place-based investments include preservation, conservation, recreational and interpretive development, and regional partnership and community capacity-building; these actions should demonstrate respect for the people, the place, and the past. According to the Corridor Preservation and Management Plan, when communities blend a mix of heritage development and traditional economic development strategies — targeted tax incentives, infrastructure improvements, assembled and prepared commercial or industrial sites, and other techniques — they maximize their competitive advantages. Case studies in the Corridor Preservation and Management Plan revealed that while each community's experience is unique, all witnessed a similar pattern of initial public investments in quality of life infrastructure that, over time, resulted in additional private investment, a substantial increase in visitors and public activity along main streets and canals, and a stronger sense of community pride. The most successful efforts were founded on the ability to identify and coordinate community and economic development objectives, define land-use plans ahead of development, and leverage public finance to encourage private sector investments. Typically, local planning and economic development agencies, supported by citizen groups and elected officials, led the effort for public grants and financing to mitigate environmental conditions, restore waterfront access, and rebuild public infrastructure.

The Preservation and Management Plan also addresses tourism and marketing of the Corridor. The Plan seeks to balance resource protection with visitation and its economic contributions to local quality of life, recognizing that the best projects create amenities for both visitors and residents to enjoy. The Corridor's approach to marketing seeks to coordinate and focus local marketing efforts, recognizing that available activities and experiences can affect a traveler's destination decision.

Appendix 2

Structural Report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Appendix 3

Presenting the Concept

The Concept Plan for Black Rock Canal Park developed by the Blackrock - Riverside Good Neighbors Planning Alliance has been presented to a long list of groups, elected officials, and agencies, giving everyone a chance to provide their comments. The following is a list of those public forums and attendees:

2006

Members	Blackrock - Riverside Good Neighbors Planning Alliance
Maria Whyte	Erie County Legislator
Sam Hoyt	NYS Assembly

2007

Julie Barret-Oneill	Buffalo Niagara Riverkeeper
Gary Hall	Harbour Place Marine Sales
Bonnie Kane Lockwood	Office of Congressman Brian Higgins
Kofi Fynn Aikens and Raymond Li	US Fish & Wildlife Service
Eric Weinreber	New York State Police
Peter Smith	US Department of Homeland Security
Martin Broniz, Scott Patronik and Rick Lauricella	Erie County Sheriff's Office
Max Willig	Grant-Amherst Business Association
Timothy Wanamaker and Bill Parke	City of Buffalo Office of Strategic Planning
Todd Kufel	US Army Corps of Engineers
Richard Sterben	New York Corporate Realty
Albert Nihill	NYS Office of Parks, Recreation and Historic Preservation
Chris Hawley	Office of Senator Charles Schumer
Andy Sedita	Erie County Parks & Recreation Commissioner
Richard Tobe	City of Buffalo Commissioner of Economic Development, Permit and Inspection Services
Antoine Thompson	NYS Senate
Tom Brodfoerer	NY Walleye Association
Dave Faccini and Danny King	Niagara River Anglers Association
Dayton Lockwood	NY Walleye Association and Niagara Muskie
Joseph Golombek Jr	City of Buffalo, Councilman
Carol Ash	New York State Office of Parks, Recreation and Historic Preservation Commissioner
Committee	Erie County Energy and Environment
Committee	Riverside Business Association
Byron Brown	City of Buffalo, Mayor
Members	North District Boaters

2008

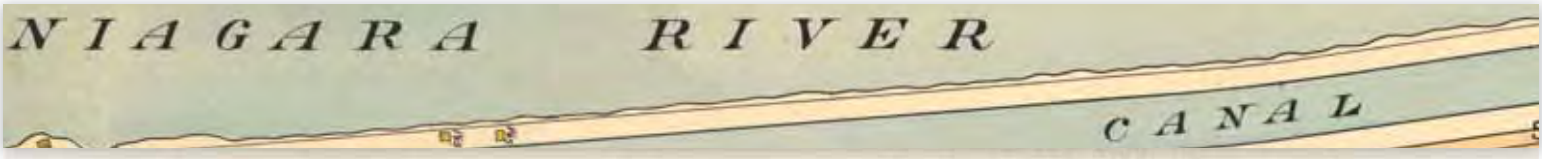
Chris Collins	Erie County Executive
James Hornung Sr.	Erie County Parks & Recreation Commissioner
Holly Sinnott	Erie County Environment & Planning Commissioner
Michael Balboni and Denise O'Donnell	New York State Homeland Security

2009

Laura Monk	Office of United States Senator Charles Schumer
Laura Krolczyk	Office of United States Senator Kirsten Gillibrand
Dennis Kozuch	Office of New York State Senator William Stachowski
Attendees	Buffalo Area Boat Show

2010

Members	North Tonawanda Power Squadron
Members	New York Walleye Association
Members	Antique and Classic Boat Association
Attendees	Buffalo Area Boat Show
Attendees	Great Upstate Boat Show



Project Steering Committee

A committee was formed for this Feasibility Analysis to provide direction on contractual requirements, project scope, schedule, maintenance, funding, and other business-related issues. The committee was made up of individuals from agencies that have a direct stake in the project – they are either managing the project, funding it or will be maintaining it upon completion. The Project Steering Committee met three times during the Feasibility Analysis process. The committee was made of the following individuals:

Tom Dearing,	Erie County Dept. of Environment & Planning
Mark Rountree,	Erie County Dept. of Environment & Planning
Margaret Szczepaniec,	Black Rock Canal Park Steering Committee
Paul Leuchner,	Black Rock Canal Park Steering Committee
Maria Whyte,	Erie County Legislator
Jim Hornung Sr.,	Erie County Division of Parks & Recreation
Sharon Leighton,	New York State Canal Corporation
Thomas Sheehan,	New York State Canal Corporation
Bill Parke,	City of Buffalo Office of Strategic Planning
Joe MacMahon,	Office of New York State Assemblymember Sam Hoyt
Bill Nowak ,	Office of New York State Senator Antoine Thompson

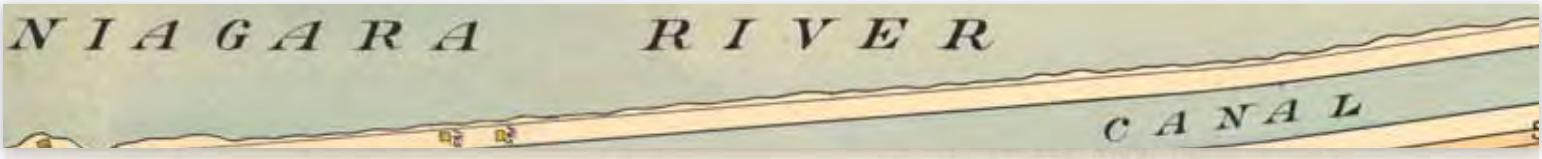
Project Advisory Committee

A project Advisory Committee was formed to provide input on the park, its design components and project design. The committee is comprised of all project Steering Committee members (above), the following individuals from the previously-formed Black Rock Canal Park Steering Committee and other interested members of the community:

Gary Hall,	Harry's Harbour Place
Bryan Hinterberger,	US Army Corps of Engineers
Philip Berkeley,	US Army Corps of Engineers
Rob Belue,	Niagara Greenway Commission
Sharon Czajkowski,	Black Rock Canal Park Steering Committee
John Bauer,	Black Rock Canal Park Steering Committee
Robert Niemiec,	Black Rock Canal Park Steering Committee
Joanna Dickinson,	Black Rock Canal Park Steering Committee
Stevan Stipanovich,	Black Rock Canal Park Steering Committee
Margaret Faircloth,	Black Rock Canal Park Steering Committee
Lawrence Pernick Jr,	Black Rock Canal Park Steering Committee
Caleb Basilko,	Black Rock Canal Park Steering Committee
John McKee,	Black Rock Canal Park Steering Committee
Warren Glover,	Black Rock Canal Park Steering Committee
Robyn Drake,	Buffalo Niagara Riverkeeper

Appendix 4

Construction Cost Worksheets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Appendix 5

Flood Levels

One of the tasks undertaken during the Feasibility Analysis was to determine the maximum historical flood level at the site. Historical water level data was collected from several of the water level gauges along the Niagara River nearest the park. The water level gauges include one upstream gauge at the Black Rock Canal lock, one gauge directly across the river at Frenchman's Creek, and one downstream gauge at the Niagara Intake.

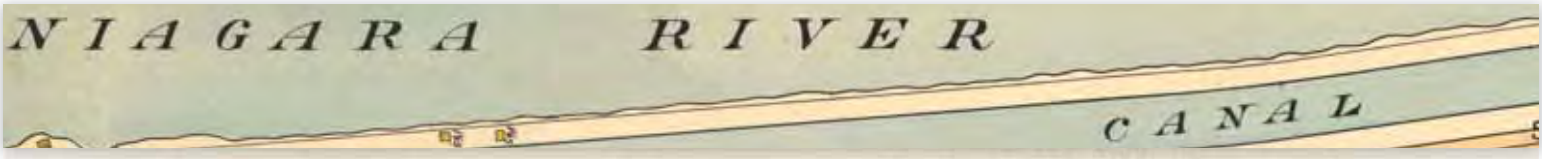
An analysis of the recorded data from these gauges, as well as conversations with local regulatory agencies familiar with flooding events on the river, revealed several dates with the highest recorded water levels. These dates are:

- November 10, 1975
- December 2, 1985
- November 4, 2001
- January 30, 2008
- October 7, 2009.

The daily maximum water levels at these gauges were compared to the water level at the park on two known occasions (September 15 and October 7, 2009), in order to calculate the typical water level difference between these gauges and the park. Since the water level difference between each gauge and the site was different for the two known days, the water level difference for the date of October 7 was used in the site flood level estimate. This decision was made because there was a seiche-induced flood on October 7, weather similar to the other dates of high water levels, whereas September 15 was an average, calm day.

Using the calculated water level difference between the gauges and the park, it was possible to estimate the water level at the park on the established dates of highest water levels. The resultant estimate of the flood elevation at the park ranged from 565.16' to 570.70'. Therefore, a worst case flood level of approximately 571' above sea level shall be used. At this level, the river would reach the top of the boat launch ramp and inundate a small area of asphalt between the ramp and the river, but the remainder of the site would not be flooded.

A seiche resulted in high water levels along the Niagara River on October 7, 2009. The water level at the Ontario Street Boat Launch, pictured at right, was approximately 568.4 feet above sea level on that date.



Estimate of Water Level for Niagara River at Black Rock Canal Park

gauge: Niagara Intake (National Oceanic & Atmospheric Administration) - downstream

date	gauge, daily max (IGLD85)	site actual (IGLD85)	difference	site estimate (IGLD85)	site estimate (NAVD88)	
11/10/1975	565.15			570.40	569.94	
12/2/1985	565.69			570.94	570.48	
11/4/2001	565.91			571.16	570.70	
1/30/2008	564.14			569.39	568.93	
9/15/2009	562.20	566.46	4.26	567.45	566.99	
10/7/2009	563.61	568.86	5.25	568.86	568.40	

gauge: Frenchman's Creek (Ontario Power Generation) - across river to west

date	gauge, daily max (IGLD85)	site actual (IGLD85)	difference	site estimate (IGLD85)	site estimate (NAVD88)	
11/10/1975	N/A					
12/2/1985	N/A					
11/4/2001	565.22			565.74	565.28	
1/30/2008	569.68			570.21	569.75	
9/15/2009	565.64	566.46	0.82	566.17	565.71	
10/7/2009	568.33	568.86	0.53	568.86	568.40	

gauge: Black Rock Canal lock at Hamilton St (US Geological Service) -upstream

date	gauge, daily max (IGLD85)	site actual (IGLD85)	difference	site estimate (IGLD85)	site estimate (NAVD88)	
11/10/1975	N/A					
12/2/1985	569.37	*		569.68	569.22	*
11/4/2001	565.31			565.62	565.16	
1/30/2008	569.88			570.19	569.73	
9/15/2009	565.79	566.46	0.67	566.10	565.64	
10/7/2009	568.55	568.86	0.31	568.86	568.40	

* the gauge value for 12/2/1985 is the MEAN daily value, not the max